Academic Program Review

Electrical/Electronics Engineering Technology
&
Computer Networks and Systems

College of Technology
Ferris State University
2008

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PREFACE[1]

August 2008

This report compiles the Academic Program Review of the Ferris State University, College of Technology, Electrical/Electronics Engineering and Computer Networks and Systems (EET & CNS) Department. The goal of this compilation is to concisely and accurately provide an image of the value, impact and substantiveness of the EET & CNS academic programs to Ferris State University.

Formatting of this report is split into the following main sections:

- **Program Overview**
  A review of the EET & CNS programs highlights, value and goals.
- **Collection of Perceptions**
  Compiled surveys from various points of view.
- **Program Profile**
  Profiles of students, curriculum and instruction.
- **Facilities and Equipment**
  A review of the EET & CNS equipment and facilities for instruction.
- **Conclusions**
  A summary of conclusions based on the body of this report.
- **Appendices**
  Appendices are listed in the same numbering as the main section of this report, with detailed data of that particular section.

Compilation of this report was facilitated with the combined help of the faculty of the EET & CNS department: Clare Cook (department chair), Jared DeMott, Keith Jewett, Warren Klope, Ron Mehringer, Murry Stocking and Gary Todd. In addition, Doug Blakemore (Professor, College of Business) served as the faculty member from outside the EET & CNS department, and Phil Marcotte (Professor Emeriti) served as our outside interested party. Steve Johnson assisted in assessing the program's facilities. A special thanks to the EET & CNS office professional, Sandy Kerridge, for editing and compiling several sections of this report, and to Amy Otteson of the FSU Institutional Research and Testing Department for facilitation of the web-based surveys.

Robert Most
Assistant Professor
EET & CNS Academic Program Review Committee Chair 2007 – 2008

Section 1: Program Overview

PROGRAM GOALS[2]

Provide students instruction so that they become knowledgeable, skilled and responsible people in the areas of automation, computer-based systems, networks or electronics where employment is a realistic probability both now and in the future.

The goals of the EET & CNS programs include:

1) Employment in a discipline appropriate for the technical degree.

2) Achieve recognition as a valued employee through varied forms of promotion and merit.

3) Demonstrate a high standard of ethical and social values.

4) Ability and desire to continue education through varied means including advanced degrees.

PROGRAM VISIBILITY AND DISTINCTIVENESS[1]

The Electrical/Electronics Engineering Technology (EET) program offers a four-year bachelor's of science degree. The BS-EET program is one of three such programs offered in the state of Michigan, and thus has substantial visibility outside the boundaries of the FSU campus. This is also enhanced by the momentum of the FSU College of Technology, which is the largest such college in the state of Michigan.

The EET program at FSU is fully accredited by the Technology Accreditation Commission of the Accreditation Board for Engineering and Technology (TAC-ABET). The EET program at FSU is one of only two Electrical/Electronics Engineering Technology programs accredited in the state of Michigan. Substantial effort is required by the EET program to achieve TAC-ABET accreditation. Such accreditation is a major contributing factor to the EET program's visibility by prospective students. Such visibility is echoed across the Internet and in publications which try to match students to solid engineering programs in higher education. The program is thoroughly audited by the TAC-ABET committee on an ongoing basis for the following outcomes:

TAC-ABET Outcomes

- Demonstrate an appropriate mastery of the knowledge, techniques, skills and modern tools of their discipline.
- Apply current knowledge and adapt to emerging applications in mathematics, science, engineering and technology.
- Conduct, analyze and interpret experiments and apply experimental results to improve processes.
- Apply creativity in the design of systems, components or processes appropriate to program objectives.
- Function effectively on teams.
- Identify, analyze and solve technical problems.
- Communicate effectively.
- Recognize the need for and possess the ability to pursue lifelong learning.
- Understand professional, ethical and societal responsibilities.
- Recognize contemporary professional, societal and global issues and be aware of and respect diversity.
- Have a commitment to quality, timeliness and continuous improvement.

In addition to visibility by prospective students, the EET & CNS programs have attained substantial attention by entities that benefit from the graduates of the respective programs. Prospective employers seek out FSU's EET and CNS graduates because of their reputation for having solid fundamentals and track record. This is reflected in both graduate hiring, as well as internship opportunities. With statistics of nearly 100% graduate placement, the program's outside influences go beyond hiring. The department also has hosted ten different companies in "Meet with Industry" colloquial conferences on an ongoing basis in the department for the benefit of the program's

current student body. Many of these companies request campus visits for such meetings.

Both EET & CNS programs have industry advisors which comprise an advisory board that assists in directing the program's curriculum and outcomes. The input from the advisory board is a great asset, as it allows the programs to adapt to changing conditions in industry, technology and the graduate environment. Advisors on the board are all volunteers from area industries, many of which are strong supporters of the programs and employers of EET & CNS graduates. The continued support of the advisory board is a clear indication of the strengths, value and visibility of the EET & CNS programs. A complete list of EET & CNS advisory board members and their respective companies is listed in the appendix.

The Computer Networks and Systems (CNS) program is not only unique in the state of Michigan, but is amongst a handful in the entire United States. The CNS program is unique because it is not only strong in networking fundamentals from a software perspective, but also buttresses the software foundation with a strong mix of hardware in the curriculum. This amalgam of hardware and software fundamentals has garnered the attention of many diverse employers, from insurance companies to intelligence agencies of the United States Government. Indeed, with the emphasis on homeland security in the last seven years, CNS students and graduates have benefited from a heightened visibility in this crucial area of national importance. The newest faculty member in the EET & CNS department (DeMott), is not only a graduate of the CNS program, but is also an expert in networking security and has worked for the U.S. Government's National Security Agency (NSA).

PROGRAM RELEVANCE[1]

The EET & CNS program's relevance is attributed to several key factors that can be summarized as follows:

- Addressing the needs of industry for a specific skill set.
- Addressing the needs of other FSU programs by providing appropriate curriculum.
- Responding to changes in technology by producing productive graduates.

The EET & CNS program's relevance can be acknowledged by the following observations:

- EET & CNS graduates enjoy a nearly 100% placement rate.
- Industry leaders ask the EET & CNS department for lecture time in "Meet the Industry" meetings held in the department.
- Specific EET & CNS scholarships have been endowed by industry.
- Donations by industry to the department to improve instruction.
- Continued interest and input by the EET & CNS Advisory Board volunteers.

Industry has sought out the graduates of FSU's EET & CNS department because of our unique blend of theory and hands-on emphasis in the laboratory. The very nature of the technology used in electronics and computer networks belies the need to adjust the curriculum to the ever changing horizon. The EET & CNS department leverages the knowledge and experience of the Advisory Board for direction in curriculum. This leverage and feedback as well as the openness for change by the faculty are key factors in keeping the programs relevant to industry on an ongoing basis.

Almost 30% of the faculty load in the EET & CNS department is directed toward students outside the EET & CNS programs. This supporting role not only reinforces the relevance of the type of instruction necessary for graduates of other programs, but also highlights the importance of electronics and computer networks in the everyday lives of people today. It goes without saying that everything from automobiles to heating, ventilation and cooling systems would cease to function, if it were not for electronics and Computer Networks and Systems.

The graduates of the EET & CNS programs are highly recruited and receive almost a 100% placement rate upon graduation. This type of recruiting pressure is evident during the FSU job fair, as well as direct inquiries into the department for our graduates. Many companies vie for time in the department to meet prospective future employees. These include "Meet with Industry" meetings held on an ongoing basis, or even visits to EET & CNS Laboratories to give students a perspective in "real world" applications. All of the students in the EET & CNS programs are required to complete an internship before graduation, which also acts as an interface to industry for our students.

The continued diffusion of EET & CNS graduates in industry, coupled with the increased interest in graduates of this program has provided fertile ground for targeted scholarships. John Deere Corporation is one such example. The John Deere Scholarship is offered to EET students to enhance their academic experience in the EET & CNS programs. Donations to the department to improve academic instruction should also be noted. Gentex Corporation recently donated equipment for classroom instruction, and Allen-Bradley Corporation donated software for our Programmable Logic Controller (PLC) laboratories.

The EET & CNS department receives input from the EET & CNS Advisory Board, which is a volunteer driven entity. It should be noted that many of the Advisory Board members have little turnover or attrition, despite its voluntary nature. The members of this board represent important industry representatives which provide input to the curriculum and direction for the programs. The relevance of the EET & CNS programs is evident by importance placed upon it by these respective industrial representatives. A complete list of EET & CNS Advisory Board members and their respective companies is listed in the appendix. An abbreviated list of companies is listed below:

- Allstate Insurance
- Gentex Corporation
- Consumers Energy Corporation
- General Electric Aerospace Corporation
- Dow Corning Corporation
- Eaton Aerospace Corporation
- Nortel Networks Corporation
- Cisco Systems Corporation
- Rockwell Automation – Allen Bradley Corporation

PROGRAM VALUE[1]

Assessing the value of the EET & CNS programs can be qualified with the following perspectives:

- Value to Ferris State University.
- Value with respect to employers of our graduates.
- Value to students in this program.

The quantification of value to the mission of Ferris State University in the area of EET & CNS is evident in several facets. The programs have received grants from the National Science Foundation (NSF) in the recent past. In addition to the NSF grants, several faculty members have received FSU's Exceptional Merit Grants as well as Timme Funding for conference travel.

The application and funding of the respective grants has allowed the faculty in the EET & CNS programs to develop and improve teaching methods, and enabled purchase of new equipment for studies. The ongoing building of this type of value in the programs is indicative of a "continuous improvement" methodology.

Advisory board members of the EET & CNS programs are voluntary positions which also are indicators of the program's value. The industry advisors are consigned to help direct the programs and their respective outcomes over the long term. The value of the EET & CNS programs and its visibility can be indirectly measured by the quality of the program's graduates which also feeds the advisory board's commitment to assure the continued success of the program.

Due to the very high placement rates of the EET & CNS graduates, industry representatives have vied to gain visibility with our graduates. This has been leveraged through the "Meet with Industry" meetings that are held in the EET & CNS department. For the 2007-2008 academic year, ten different industry representatives have held meetings to familiarize students with their respective industry and applications of real-world engineering projects. These meetings also present an opportunity for students to interface with industry representatives, a window outside the FSU Job Fair for networking and answering questions. The value of the programs is evident by resources and commitment of these outside firms to our students.

Section 2: Collection of Perceptions

GRADUATE FOLLOW-UP SURVEY[1]

The EET & CNS department consists of three academic disciplines: Computer Networks and Systems, Industrial Electronics Technology and Electrical and Electronics Technology. Each discipline, having its own graduates, required a separate graduate follow-up survey. Therefore, three different sections outline this area of the report.

To facilitate efficient surveying of these respective graduates, the FSU department of Institutional Research and Testing was utilized. Specialized software was available that took a basic questionnaire from an electronic document and was deployed in a web-based application to the target graduates. Each graduate had a unique signature URL (Uniform Resource Locator – a web page), which disallowed duplicate voting. Two distinct e-mail deployments were realized. A first canvassing was done using e-mail addresses from the FSU Alumni Relations office. To increase yields, a second canvassing was done with additional e-mail addresses from the EET & CNS department.

Computer Networks and Systems

The Computer Networks and Systems (CNS) graduates were canvassed using Internet surveying resources leveraged by the Ferris State University department of Institutional Testing and Research. The department of Electronics Engineering Technology and CNS developed a questionnaire and compiled it in Microsoft Word. The document was submitted and reformatted by FSU's Institutional Testing and Research for use in Internet broadcast using HTML protocols. A list of CNS graduates was forwarded from the Ferris State University Alumni Relations Department and parsed for e-mail contact information. Individual e-mails were then sent to respective alumni, each with a unique Internet URL code, which allowed for a single survey per respondent. Compilations of the results of the surveys were then sent back for analysis by the EET and CNS department, and highlighted below. A comprehensive listing of the survey results can be found in the appendix of this document.

The CNS graduates responses were complimentary with respect to the curriculum content and in comparison with other graduates. Specifically, CNS graduates highlighted:

- 73% "agreed or strongly agreed" that their CNS experience at Ferris was satisfying.

- 87% "agreed or strongly agreed" that they had a strong technical understanding of their particular field.

- 67% “strongly agreed” that they performed well compared to graduates of other universities.

- 60% “somewhat agreed or strongly agreed” that the CNS courses provided a good mix of subjects for career options.

- 80% “somewhat agreed or strongly agreed” that they would recommend the CNS program to others.

Some specific graduate quotes:

“CNS provided me the broad array of skills to be more useful at my job. My supervisor knows that I'll be able to fill the most needed position or task, not just the one I'm officially trained in.”

“Excellent Program- Please keep DC and AC circuits classes...truly sets us apart from graduates of other universities. There is a lab formerly given by Prof. Cook within the Control Networks class that involves simulating a TDR w/ a function generator and O-Scope. If this lab isn't currently part of the CNS curriculum, I highly recommend adding it back. Consider incorporating labs involving fiber (fabricating fiber patch cords, splicing, etc) as fiber is becoming more popular daily.”

Electrical / Electronics Engineering Technology

The Electrical / Electronics Engineering Technology (EET) graduates were canvassed using Internet surveying resources leveraged by the Ferris State University department of Institutional Testing and Research. The department of Electronics Engineering Technology and CNS developed a questionnaire and compiled it in Microsoft Word. The document was submitted and reformatted by FSU's Institutional Testing and Research for use in Internet broadcast using HTML protocols. A list of EET graduates was forwarded from the Ferris State University Alumni Relations Department and parsed for e-mail contact information. Individual e-mails were then sent to respective alumni, each with a unique Internet URL code, which allowed for a single survey per respondent. Compilations of the results of the surveys were then sent back for analysis by the EET and CNS department, and highlighted below. A comprehensive listing of the survey results can be found in the appendix of this document.

The responses of the EET graduates contained far more written commentary than either the IET or CNS graduates, and this is reflected below. With respect to the graduate perceptions in EET, it is quite clear that the emphasis on hands-on teaching that is emphasized by the FSU EET program is important. EETs in the field value their experience that goes beyond theory, and the lab-based approach in the teaching methodologies in our curriculum are apparent. Some key highlights include:

- 81% "somewhat agreed or strongly agreed" that their EET experience at Ferris was satisfying.
- 87% "agreed or strongly agreed" that they had a strong technical understanding of their particular field.
- 70% "strongly agreed" that they performed well compared to graduates of other universities.
- 70% "somewhat agreed or strongly agreed" that the EET courses provided a good mix of subjects for career options.
- 78% "somewhat agreed or strongly agreed" that they would recommend the EET program to others.

In the commentary section, it is apparent that several graduates thought of the program highly enough to really spend some time to give valuable feedback. Key information included:

- Understanding the differentiation between Electrical Engineering (BSEE) and Electrical Engineering Technology (BSEET), of which only the latter is offered by FSU.

- The inclusion of simulation tools in the curriculum, which evolves as the curriculum evolves. Tools are ever changing in industry and the department should adapt to changes as they occur.

- The emphasis on design engineering – a complimentary approach to hands-on learning.

"The BSEET program opened many doors that my work experience would have never allowed. They both complimented each other and have helped me in many options. I have started a new plant from ground up, taken on QA role for Electrical Components for Office Furniture. Changed directions into Controls for Tempering Lines for Automotive Glass. I have utilized all of my knowledge to have successful platform launches for new vehicles and now currently Area Coordinator for the Tempering lines, managing production associates, engineering and maintenance to meet customer expectations."

"I was very pleased with my FSU education and the preparation I received for using those skills in the real world. I worked for DEAN FOODS while attending FSU and upon graduation transferred to their corporate engineering where I advanced to the position of Midwest Regional Engineering Manager. Almost six years ago, I left DEAN FOODS, during company restructuring, and started my own systems integration firm. Since then, we have added additional personnel and grown to over $6 million in sales this year. During that time I have contacted FSU BSEET personnel on a few occasions inquiring about possible interns. I have not heard back from anyone. I believe this would provide valuable experiences to them as well as allow me to give a little back to FSU. I have had two nephews work for me, both U of M engineering grads. One now works for Eli Lilly and the other SC Johnson. Both attribute their success to the early start and training they got from working for RWS."

"After spending time in the industry it seems that if "design" is what you're after, then a BSEET is probably not adequate from the employer's perspective. For some reason it is not held to the same standard by employers as EE programs. I do not believe that it is a reflection of the university nor the quality of the educational content; it is simply the type of information presented in the BSEET program versus the EE program. The BSEET program at Ferris is very good. I learned a wealth of information about a variety of topics in the electrical engineering discipline and I feel that I was adequately prepared to succeed in industry. My advice would be to encourage Ferris to enlighten the students on the differences between the EET and EE education and what jobs they can expect to get after graduation. Other things that I would like to see included in the program are more simulation programs and software tools. Simulation is very large in the design industry and most companies use some type of software in the design process. PSPICE is used extensively along with programs such as MATLAB, Maple, and MathCAD. More exposure to these types of tools should be included and the importance should be emphasized. Throughout my four years at Ferris, SPICE simulation was introduced but at a very low level. There are a variety of free windows-

based simulators out there right now such as Linear Technology's "Switcher CAD." It offers unlimited components and has many beneficial features that would enhance a student's understanding of circuit design principles. I find that many students do not understand the benefits of circuit simulation because it was not emphasized enough. The hands-on approach of "making calculations and then building" at Ferris is wonderful and is taken for granted at most engineering schools. This hands-on skill set is a remarkable thing that many entry level engineering students do not posses. Taking the design approach one step further would be to integrate more simulation into the lecture and laboratory assignments. Also more options for electives would be beneficial. Soon after graduation, I was considering completing graduate work in electrical engineering. After some research, I quickly realized how much coursework would be necessary to achieve the MSEE degree coming from an EET program. My math classes would not transfer into a typical three Calculus and Differential Equations sequence required at most engineering schools. It would be nice to include information about those types of requirements for students who may wish to further their education in a related engineering discipline. At the very least make these options well known and understood so that the student can make a decision that is best for them. As well the typical calculus sequence opens up other opportunities for other mathematical degrees including a minor, or applied mathematics degree available at Ferris and other institutions. Additionally, when it came time to take my EET related electives, I noticed that some of the courses were available on a "need basis" and were only offered if enough interest was shown. However, I did participate in independent studies for some of these courses. Although I learned valuable information, I feel that more could have been learned if I had taken the course in a traditional format. I have also done some research on other universities that offer the BSEET program such as Purdue University. They seem to have many more options for electives and tend to be less automation focused than Ferris does. The last point I would like to stress is that I would like to see Ferris offer a MSEET program focused more on the circuit design topics such as Analog/Digital and EMC related areas. The only university that I have found in Michigan to offer a MSEET program was Wayne State University. Additionally the program seemed to be focused on automation and industrial topics. The other closest university that offers a MSEET program is Purdue which has coursework geared more towards the circuit design aspect. I truly think that there would be enough interest in this program to offer it. I would also like to stress that I feel that the education I received at Ferris was definitely adequate and I feel that the University has done a good job preparing students to be successful in industry. I only regret that the differences between the EE and EET programs were not more clearly stated and that students were better informed so that they could make a decision that was best for them and their career goals."

Industrial Electronics Technology

The Industrial Electronics Technology (IET) graduates were canvassed using Internet surveying resources leveraged by the Ferris State University department of Institutional Testing and Research. The department of Electronics Engineering Technology and CNS developed a questionnaire and compiled it in Microsoft Word. The document was submitted and reformatted by FSU's Institutional Testing and Research for use in Internet broadcast using HTML protocols. A list of IET graduates was forwarded from the Ferris State University Alumni Relations Department and parsed for e-mail contact information. Individual e-mails were then sent to respective alumni, each with a unique Internet URL code, which allowed for a single survey per respondent. Compilations of the results of the surveys were then sent back for analysis by the EET and CNS department, and highlighted below. A comprehensive listing of the survey results can be found in the appendix of this document.

Since IET graduates are a two-year degree and a subset of the EET curriculum, many of the comments echo the EET analysis. The aspects of troubleshooting, hands-on experience and lab-based technological understanding appear as foundations of the alumni responses.

- 87% "somewhat agreed or strongly agreed" that their IET experience at Ferris was satisfying.

- 96% "agreed or strongly agreed" that they had a strong technical understanding of their particular field.

- 89% "strongly agreed" that they performed well compared to graduates of other universities.

- 75% "somewhat agreed or strongly agreed" that the IET courses provided a good mix of subjects for career options.

- 42% "somewhat agreed or strongly agreed" that they would recommend the IET program to others.

The IET program at FSU has a long history, as reflected in many of the alumni comments. Graduates reflect a proud and respective collective, with emphasis in a diverse range of careers that have sprung from the IET degree at FSU. Some comments are highlighted below.

"Excellent framework for work in Engineering. Went straight to Medical Field with IET framework in Biomedical equipment. Got into Computers and Integration after that."

"I graduated in 1976, and today the world is different. That said, basic electronics are understood by very few people today that call themselves 'technicians'. Component

level troubleshooting using basic theory is almost a lost art, and yet the ability to understand and fix things has helped me over the years."

EMPLOYER FOLLOW-UP SURVEY[4]

The employer follow-up survey was conducted in the following manner. First, a list of recent graduates (10) from the Industrial Electronics Technology/Electrical Electronic Engineering Technology (IET/EEET) curriculum and a list of recent graduates (19) from the Computer Networks and Systems (CNS) curriculum were compiled. From these lists, a subset of current email addresses (CNS – 5 and IET/EET – 4) was obtained by contacting the recent graduates by email requesting the email address of their supervisors and asking permission to send the employer survey to the supervisor. Two email requests were sent to each supervisor that agreed to answer the survey which resulted in four (4) CNS employers and three (3) IET/EET employers actually responding to the survey. It is apparent from this response that a larger set of graduate email addresses is needed to receive a larger set of actual responses from the employers.

Computer Networks and Systems

The CNS graduates were canvassed using Internet surveying resources leveraged by the Ferris State University department of Institutional Testing and Research. The CNS department developed a questionnaire and compiled it in Microsoft Word. The document was submitted and reformatted by FSU's Institutional Testing and Research for use in Internet broadcast using HTML protocols. A list of CNS employer email addresses was provided to IRC and two separate requests were sent to each employer. Compilations of the results of the surveys were then sent back for analysis by the CNS department, and highlighted below. A comprehensive listing of the survey results can be found in the appendix of this document.

The CNS employer responses were generally complimentary with respect to the capabilities of the CNS graduates. Specifically, CNS employers highlighted:

• 50% "somewhat agreed" and 50% "strongly agreed" that the CNS graduates performed well in their current positions.

• 50% "somewhat agreed" and 50% "strongly agreed" that the CNS graduates possessed critical thinking skills.

• 100% "strongly agreed" that the CNS graduates possessed strong technical understanding.

• 50% "somewhat agreed" and 50% "strongly agreed" that the CNS graduates applied technical theory.

• 25% “somewhat agreed” and 75% “strongly agreed” that the CNS graduates possessed adequate mathematical skills.

Some specific employer quotes:

*“*As an M.S. grad from Ferris myself, it is refreshing to see that Ferris continues to prepare its graduates for the workplace. I am always willing to consider fellow Ferris graduates for positions in my department.”

“Outstanding technical skills but lacking in verbal & written communication & presentation skills. This hinders career advancement in a world where IT continues to be more & more integrated with the business.”

Industrial Electronics Technology

Electrical Electronics Engineering Technology

The IET/EEET graduates were canvassed using Internet surveying resources leveraged by the Ferris State University department of Institutional Testing and Research. The IET/EEET department developed a questionnaire and compiled it in Microsoft Word. The document was submitted and reformatted by FSU’s Institutional Testing and Research for use in Internet broadcast using HTML protocols. A list of IET/EEET employer email addresses was provided to IRC and two separate requests were sent to each employer. Compilations of the results of the surveys were then sent back for analysis by the IET/EEET department, and highlighted below. A comprehensive listing of the survey results can be found in the appendix of this document.

The IET/EEET employer responses were generally complimentary with respect to the capabilities of the IET/EEET graduates. Specifically, IET/EEET employers highlighted:

• 33.3% “somewhat agreed” and 66.7% “strongly agreed” that the IET/EEET graduates performed well in their current positions.

• 66.7% “somewhat agreed” and 33.3% “strongly agreed” that the IET/EEET graduates possessed critical thinking skills.

• 66.7% “somewhat agreed” and 33.3% “strongly agreed” “strongly agreed” that the IET/EEET graduates possessed strong technical understanding.

• 66.7% “somewhat agreed” and 33.3% “strongly agreed” that the IET/EEET graduates applied technical theory.

• 66.7% “somewhat agreed” and 33.3% “strongly agreed” that the IET/EEET graduates possessed adequate mathematical skills.

A specific employer quote:

"********** was a very good Test Technician for us. He has since moved on to another career opportunity. We didn't want to see him go but we wish him great success."

Summary

The survey results provided for this report represents a very small sample size. This is not the only responses that the CNS and IET/EEET departments have received from graduates and their employers; however, this is the only formal survey that has been implemented. Many students and employers have related similar information to us in an informal manner and these anecdotal reports confirm the value and performance of the CNS and IET/EEET graduates. In the future, the department intends to be more proactive in the formal collection of graduate email addresses and employer evaluations.

GRADUATING STUDENT EXIT SURVEY[1]

The graduating students from the EET & CNS department were canvassed with a survey of the program which highlighted the following areas:

- Perceptions of the program
- Perceptions of the faculty
- Perceptions of the curriculum
- Perceptions of the facilities
- General perceptions / open topics

The entire survey and results are in the appendix of this document. This includes detailed commentary from the students.

Graduating Student Program Perceptions

The graduating student's comments and opinions on the EET program indicated that there are some students who feel that Electrical / Electronics Engineering Technology is marketed as an engineering degree, rather than a technology degree. These students feel that by the time they understood the difference between the two, it was "too late" and they had invested substantial time and resources to the technology degree at FSU to have to transfer to another university that offers an engineering degree. In addition, opportunities are limited for technology degree recipients to move into graduate school directly, without getting an engineering degree first. Other comments highlighted the lack of funding for laboratories, as older equipment is apparent, with the note that some of our labs contain tags that still have "Ferris State College" on them.

The CNS students felt that the curriculum needs to be updated, with a critical look at some classes, such as "PC Data Acquisition" as being not useful. The addition of several new technologies in labs such as Voice over IP (VOIP) is critical to keep the program on the leading edge of ever changing landscape of teaching and instruction.

Several students also questioned the policy of paying tuition for an internship offsite at a corporation.

- 85% of EET students felt that they "somewhat agreed or strongly agreed" that ABET accreditation was valuable to them.

- 75% of EET and CNS students combined felt that they "somewhat agreed or strongly agreed" that the program is distinctive and holds great value.

- 55% of EET students felt "somewhat agreed or strongly agreed" that they were satisfied with the program overall.

- 100% of CNS students “somewhat agreed or strongly agreed” that they were satisfied with the program overall.

Graduating Student Faculty Perceptions

The EET and CNS students had praise for some faculty and displeasure with others. But the common theme of the student’s perception is that the review criteria for faculty are ambiguous. The students are clearly concerned with the quality of instruction, but some are frustrated with the inconsistency of instruction amongst the faculty and they cannot seem to justify the reasoning for this without a framework of faculty review.

- 55% of EET students felt “somewhat agreed or strongly agreed” that they were satisfied with the faculty overall.

- 87.5% of CNS students “somewhat agreed or strongly agreed” that they were satisfied with the faculty overall.

Graduating Student Facilities Perceptions

The general opinions stated on both the EET and CNS graduating students is that the lab equipment is antiquated and requires updating. Other opinions praised the fact that labs are accessible when required, and equipment is available for use.

- 80% of EET students felt “somewhat agreed or strongly agreed” that the EET & CNS lab facilities had enough equipment and sections so that students could either work individually or in groups effectively.

- 100% of CNS students felt “somewhat agreed or strongly agreed” that the EET & CNS lab facilities had enough equipment and sections so that students could either work individually or in groups effectively.

Graduating Student Curriculum Perceptions

The general tide of opinion for EET students in the area of curriculum is in classes offered, in two specific instances. First, students are frustrated that many classes are offered only once per academic year. This creates problems for some students who are out of sequence or are transferees that force them to stay longer than they wish. Secondly, students are frustrated that some non-core elective courses are rarely offered, yet they are on the books as part of the curriculum. Many want to take these courses, but simply cannot due to lack of critical class size restrictions.

The CNS students seem to desire more programming and computer server / administrative classes. As stated earlier, the usefulness of the PC Data Acquisition course is questioned with relation to its usefulness to the CNS curriculum. EET students, on the other hand, seem to desire fewer programming courses.

- 75% of EET students felt "somewhat agreed or strongly agreed" that the EET/CNS program offers adequate specializations / concentrations in the areas that I was interested in.

- 87.5% of CNS students felt "somewhat agreed or strongly agreed" that the EET/CNS program offers adequate specializations / concentrations in the areas that I was interested in.

Graduating Student General Perceptions

The general perceptions by the CNS students seem to be more favorable than the EET students. The graduating EET students at this level feel a disparity between a typical engineering program vs. FSU's technology program, as revealed by the survey. CNS students, on the other hand, feel much more confident about their decision to purse their degree, if they had to do it over again.

- 87.5% of graduating CNS students indicated that they "somewhat agreed or strongly agreed" that they received their money's worth in their education.

- 50% of graduating EET students indicated that they "somewhat agreed or strongly agreed" that they received their money's worth in their education.

- 40% of graduating EET students indicated that they "somewhat agreed or strongly agreed" that 'If I had to do it over again, I would choose the EET/CNS programs at FSU - knowing what I know now about all aspects of the program.'

- 75% of graduating CNS students indicated that they "somewhat agreed or strongly agreed" that 'If I had to do it over again, I would choose the EET/CNS programs at FSU - knowing what I know now about all aspects of the program.'

STUDENT PROGRAM EVALUATION[3]

EET & CNS Department Academic Program Review Survey of Current CNS, IET & EET Students during the Spring 2008 semester.

Executive Summary

A survey of the perceptions of the current BS-CNS, AAS-IET and BS-EET students at Ferris State University was executed in the 2008 spring semester. The survey consisted of over ninety individual questions grouped into thirty-four major questions. The survey covered a variety of topics, including but not limited to:

- academic advising;
- course design, delivery, content and availability;
- physical resources such as facilities, equipment, availability;
- personnel of the Department-faculty and staff;
- supporting courses from the Math, Physics, and General Education areas;
- supporting efforts of the Student Employment & Career Services;
- marketing of the program past and future;
- demographics of our students- past, present, and future;
- opportunity for open-ended feedback from the students.

Eighty five out of one hundred and fourteen eligible students (75%) responded to the survey.

Sixteen of the major questions were in the positive tone with the respondents choices being: 1=Strongly Disagree, 2=Somewhat Disagree, 3=Neutral, 4=Somewhat Agree, 5=Strongly Agree. The average student response to these types of questions was 3.8 with a standard deviation of 1.0. This indicates an overall satisfaction with the programs by our students. Studying the student's responses to the other questions also supports this overall satisfaction.

Body of the Report

A survey of the perceptions of the current BS-CNS, AAS-IET and BS-EET students at Ferris State University was executed in the 2008 spring semester. The survey consisted of over ninety individual questions grouped into thirty four major questions. The survey covered a variety of topics, including but not limited to:

- academic advising;
- course design, delivery, content and availability;
- physical resources such as facilities, equipment, availability;
- personnel of the Department-faculty and staff;
- supporting courses from the Math, Physics, and General Ed areas;
- supporting efforts of the Student Employment & Career Services;
- marketing of the program past and future;
- demographics of our students- past, present, and future;
- opportunity for open-ended feedback from the students.

The survey was developed over a period of months using input from a variety of sources. The survey is composed of thirty-four general questions with several sub-questions to most questions. The survey resulted in 90+ questions covering various topics. The survey is located in the Appendix.

To determine the number of eligible students for the survey, an analysis of the students enrolled in our program courses was performed. The program courses are those with the ECNS and EEET designator less the related courses of EEET 115, 210, 301. The program in which each student was enrolled was counted with the results listed in the following table.

Grand Count-All	**134**
CIS-Computer Information Systems Count	3
CNS-Computer Networks and Systems Count	53
EEET-Electrical/Electronics Engineering Technology Count	30
EEIT-Industrial Electronics Technology Count	31
ISM-Information Systems Management Count	1
MAED-Mathematics Education Count	1
PCNM-Pre-Construction Management Count	1
PCNS-Pre-Computer Networks and Systems Count	4
PEET-Pre-Electrical/Electronics Engineering Technology Count	5
PEIT-Pre-Industrial Electronics Technology Count	5

The base for the Student Survey is only those students enrolled in our BS-CNS, BS-EET, and AAS-IET programs. Neither “pres” nor “other” program’s students were included per the APRP's directive.

Grand Count-Base	**114**
CNS-Computer Networks and Systems Count	53
EEET-Electrical/Electronics Engineering Technology Count	30
EEIT-Industrial Electronics Technology Count	31

The detailed analysis of the students enrolled in our program courses is located in the Appendix.

The survey was made available to the base near the midpoint of the 2008 spring semester. There were 85 student respondents. Assuming there were no duplicate responses, the student response was 85/114 or 75%.

The student’s responses to textual questions are located in the Appendix. The following tables summarize the responses of the students to multiple choice and other non-textual questions.

Summary Statistics

Raw Statistics Prepared by: Institutional Research & Testing, 03/08/2008
Report Prepared by: Prof. Warren Klope, 05/03/2008

Ratings used for questions 1-11, 13-17 are:
1=Strongly Disagree, 2=Somewhat Disagree, 3=Neutral, 4=Somewhat Agree, 5=Strongly Agree.

Question	Sub-question		N		Mean	Median	StdDev.
			Valid	Missing			
01		Q01 Please indicate your level of agreement with each of the following statements regarding academic advising.					
01	a	Q01a I was "placed" in the appropriate courses	*85.0*	*0.0*	*3.8*	*4.0*	*1.2*
01	b	Q01b Dept. Chair is helpful/courteous	*85.0*	*0.0*	*4.1*	*4.0*	*1.0*
01	c	Q01c Dept. Chair knows/executes advising role well	*84.0*	*1.0*	*4.1*	*4.0*	*1.0*
01	d	Q01d Academic advisor is helpful/courteous	*85.0*	*0.0*	*4.2*	*5.0*	*1.1*
01	e	Q01e Academic advisor knows/executes advising role well	*84.0*	*1.0*	*4.2*	*5.0*	*1.0*
01 Average			**84.6**	**0.4**	**4.1**	**4.4**	**1.0**

02		Q02 Please indicate your level of agreement with each of the following statements regarding course delivery.					
02	a	Q02a Curriculum provides knowledge/skills required by employers	*85.0*	*0.0*	*4.0*	*4.0*	*0.9*
02	b	Q02b Assignment objectives are made clear to students	*85.0*	*0.0*	*4.0*	*4.0*	*0.9*
02	c	Q02c Lectures are well prepared & organized	*84.0*	*1.0*	*3.9*	*4.0*	*0.9*
02	d	Q02d Use of media, white boards, etc. is appropriate/helpful	*85.0*	*0.0*	*4.2*	*4.0*	*0.8*
02 Average			**84.8**	**0.3**	**4.0**	**4.0**	**0.9**

03		Q03 Please indicate your level of agreement with each of the following statements regarding learning evaluation.					
03	a	Q03a Student expectations/grading are clearly explained	*84.0*	*1.0*	*4.0*	*4.0*	*0.9*
03	b	Q03b Testing/evaluation procedures are reasonable	*84.0*	*1.0*	*4.0*	*4.0*	*0.9*
03	c	Q03c Graded materials are returned within reasonable time	*83.0*	*2.0*	*4.2*	*4.0*	*0.8*
03 Average			**83.7**	**1.3**	**4.1**	**4.0**	**0.9**

04		Q04 Please indicate your level of agreement with each of the following statements regarding course material.					
04	a	Q04a Material presented is current, not outdated	*83.0*	*2.0*	*3.8*	*4.0*	*1.0*
04	b	Q04b Difficulty of material is appropriate	*83.0*	*2.0*	*3.9*	*4.0*	*0.9*
04	c	Q04c Quality of material presented is high	*83.0*	*2.0*	*4.0*	*4.0*	*0.9*
04	d	Q04d Pace of material is appropriate	*83.0*	*2.0*	*3.9*	*4.0*	*0.9*
04	e	Q04e Material presented is relevant to the curriculum	*83.0*	*2.0*	*4.1*	*4.0*	*0.9*
04 Average			**83.0**	**2.0**	**3.9**	**4.0**	**0.9**

05		Q05 Please indicate your level of agreement with each of the following statements regarding laboratory equipment.					
05	a	Q05a Laboratory equip (excluding general computers): Sufficient/good quality	*85.0*	*0.0*	*3.7*	*4.0*	*1.1*
05	b	Q05b Laboratory equip (excluding general computers): Current w/ industry	*85.0*	*0.0*	*3.5*	*4.0*	*1.1*
05	c	Q05c Laboratory equip (excluding general computers): Well maintained	*85.0*	*0.0*	*4.0*	*4.0*	*0.9*
05	d	Q05d Laboratory equip (excluding general computers): Sufficient quantity	*84.0*	*1.0*	*3.7*	*4.0*	*1.0*
05	e	Q05e Laboratory general computers sufficient/good quality	*85.0*	*0.0*	*3.5*	*4.0*	*1.2*
05	f	Q05f Laboratory equip accessible outside of scheduled laboratory times	*85.0*	*0.0*	*4.0*	*4.0*	*0.9*
05	g	Q05g Software 'accessible outside of scheduled laboratory times	*85.0*	*0.0*	*3.8*	*4.0*	*1.0*
05 Average			**84.9**	**0.1**	**3.7**	**4.0**	**1.0**

06		Q06 Please indicate your level of agreement with each of the following statements regarding laboratory availability.					
06	a	Q06a Lecture facilities are sufficient/good quality	*84.0*	*1.0*	*4.0*	*4.0*	*0.8*
06	b	Q06b Laboratories (excluding equipment) sufficient/good quality	*83.0*	*2.0*	*4.1*	*4.0*	*0.7*
06	c	Q06c Open laboratory hours are open sufficient amounts of time	*84.0*	*1.0*	*3.8*	*4.0*	*1.0*
06	d	Q06d Open laboratory hours are at convenient times	*83.0*	*2.0*	*3.8*	*4.0*	*1.0*
06 Average			**83.5**	**1.5**	**3.9**	**4.0**	**0.9**

07		Q07 Please indicate your level of agreement with each of the following statements regarding course resources.					
07	a	Q07a Reference materials are available & relevant	*81.0*	*4.0*	*3.8*	*4.0*	*0.9*
07	b	Q07b SLA laboratories in EET were very worthwhile/helpful	*42.0*	*43.0*	*3.8*	*4.0*	*1.1*
07	c	Q07c Textbooks of good technical quality	*72.0*	*13.0*	*3.7*	*4.0*	*1.1*
07	d	Q07d Textbooks of good readability	*72.0*	*13.0*	*3.4*	*3.5*	*1.2*
07 Average			**66.8**	**18.3**	**3.7**	**3.9**	**1.1**

08		Q08 Please indicate your level of agreement with each of the following statements regarding the department personnel.					
08	a	Q08a Chair knows/executes job well	*84.0*	*1.0*	*4.0*	*4.0*	*0.9*
08	b	Q08b Chair is helpful/courteous	*82.0*	*3.0*	*4.2*	*4.0*	*0.9*
08	c	Q08c Secretary knows/executes job well	*84.0*	*1.0*	*4.1*	*4.0*	*0.9*
08	d	Q08d Secretary is helpful/courteous	*84.0*	*1.0*	*4.3*	*4.5*	*0.9*
08	e	Q08e Technician knows/executes job well	*83.0*	*2.0*	*4.4*	*5.0*	*0.9*
08	f	Q08f Technician is helpful/courteous	*83.0*	*2.0*	*4.4*	*5.0*	*0.8*
08 Average			**83.3**	**1.7**	**4.2**	**4.4**	**0.9**

09		Q09 Please indicate your level of agreement with each of the following statements regarding the program faculty.					
09	a	Q09a Instructors care about students' learning	*84.0*	*1.0*	*4.1*	*4.0*	*1.0*
09	b	Q09b Instructors are effective in the classroom	*84.0*	*1.0*	*4.0*	*4.0*	*1.0*
09	c	Q09c Instructors are effective in the laboratory	*84.0*	*1.0*	*4.1*	*4.0*	*1.0*
09	d	Q09d Instructors are knowledgeable	*84.0*	*1.0*	*4.3*	*4.0*	*0.8*
09 Average			**84.0**	**1.0**	**4.1**	**4.0**	**1.0**

10		Q10 Please indicate your level of agreement with each of the following statements regarding course offerings and objectives.					
10	a	Q10a Courses available at convenient times	*82.0*	*3.0*	*3.2*	*4.0*	*1.2*
10	b	Q10b Courses available at convenient locations	*82.0*	*3.0*	*4.2*	*4.0*	*0.9*
10	c	Q10c Published objectives accurately describe courses	*81.0*	*4.0*	*3.9*	*4.0*	*0.9*
10	d	Q10d Published objectives readily available to students	*81.0*	*4.0*	*4.0*	*4.0*	*0.9*
10 Average			**81.5**	**3.5**	**3.8**	**4.0**	**1.0**

11		Q11 Please indicate your level of agreement with each of the following statements regarding program courses.					
11	a	Q11a EET & CNS Dept courses are challenging	*84.0*	*1.0*	*4.1*	*4.0*	*0.9*
11	b	Q11b EET & CNS Dept courses are informative	*84.0*	*1.0*	*4.2*	*4.0*	*0.7*
11	c	Q11c Courses covered topics of interest to me	*84.0*	*1.0*	*4.0*	*4.0*	*0.9*
11	d	Q11d Courses have good coordination between lecture & laboratory	*84.0*	*1.0*	*4.1*	*4.0*	*0.9*
11	e	Q11e Courses based on realistic prerequisites/corequisites	*84.0*	*1.0*	*3.9*	*4.0*	*1.1*
11 Average			**84.0**	**1.0**	**4.1**	**4.0**	**0.9**

12		Q12 What percentage of educational time in the EET & CNS classes should be spent in laboratory "hands on" experience? 1 = 30% to 40% responses: (9.6%) 2 = 41% to 50% responses: (20.5%) 3 = 51% to 60% responses: (28.9%) 4 = 61% to 70% responses: (41.0%)					
12		Q12 Percentage of EET/CNS classes spent in laboratory "hands on"	*83.0*	*2.0*	*3.0*	*3.0*	*1.0*
12 Average			**83.0**	**2.0**	**3.0**	**3.0**	**1.0**

13		Q13 Please indicate your level of agreement with each of the following statements regarding Math Department courses.					
13	a	Q13a Math Dept. program courses were challenging	*83.0*	*2.0*	*4.0*	*4.0*	*0.9*
13	b	Q13b Math Dept. program courses were informative	*83.0*	*2.0*	*3.7*	*4.0*	*1.0*
13	c	Q13c Math Dept. program courses good foundation	*83.0*	*2.0*	*3.5*	*4.0*	*1.1*
13 Average			**83.0**	**2.0**	**3.7**	**4.0**	**1.0**

14		Q14 Please indicate your level of agreement with each of the following statements regarding Physics Department courses.					
14	a	Q14a Physics Dept. program courses were challenging	*80.0*	*5.0*	*3.8*	*4.0*	*1.0*
14	b	Q14b Physics Dept. program courses were informative	*80.0*	*5.0*	*3.4*	*3.0*	*1.1*
14	c	Q14c Physics Dept. program courses good foundation	*80.0*	*5.0*	*3.1*	*3.0*	*1.1*
14 Average			**80.0**	**5.0**	**3.4**	**3.3**	**1.0**

15		Q15 Please indicate your level of agreement with each of the following statements regarding general education courses.					
15	a	Q15a Gen ed courses were challenging	*83.0*	*2.0*	*3.3*	*3.0*	*1.0*
15	b	Q15b Gen ed courses were informative	*83.0*	*2.0*	*3.5*	*4.0*	*1.0*
15	c	Q15c Gen ed courses good foundation for follow-up courses	*83.0*	*2.0*	*3.0*	*3.0*	*1.1*
15	d	Q15d Gen ed courses are a good foundation for life	*83.0*	*2.0*	*3.1*	*3.0*	*1.2*
15	e	Q15e Gen ed instruction is of high quality	*83.0*	*2.0*	*3.3*	*3.0*	*1.1*
15 Average			**83.0**	**2.0**	**3.2**	**3.2**	**1.1**

16		Q16 Please indicate your level of agreement with each of the following statements regarding technical elective courses.					
16	a	Q16a Tech elective courses are available in areas of my interest	*81.0*	*4.0*	*3.6*	*4.0*	*1.0*
16	b	Q16b Tech elective courses were challenging	*81.0*	*4.0*	*3.7*	*4.0*	*0.9*
16	c	Q16c Tech elective courses were informative	*81.0*	*4.0*	*3.8*	*4.0*	*1.0*
16	d	Q16d Tech elective courses good foundation for follow-up	*81.0*	*4.0*	*3.5*	*3.0*	*1.0*
16	e	Q16e Tech elective courses are relevant to my program	*80.0*	*5.0*	*3.6*	*3.5*	*1.0*
16	f	Q16f Tech elective instruction is of high quality	*81.0*	*4.0*	*3.7*	*4.0*	*0.9*
16 Average			**80.8**	**4.2**	**3.7**	**3.8**	**1.0**

17		Q17 Please indicate your level of agreement with each of the following statements regarding Student Employment & Career Services.					
17	a	Q17a Student Employ/Career Services personnel helpful/courteous	*79.0*	*6.0*	*3.3*	*3.0*	*0.9*
17	b	Q17b Student Employ/Career Services personnel know/execute job well	*79.0*	*6.0*	*3.2*	*3.0*	*0.9*
17	c	Q17c Student professional organizations associated w/ program benefited me	*80.0*	*5.0*	*3.2*	*3.0*	*0.9*
17	d	Q17d Student organization's NOT associated w/ program benefited me	*79.0*	*6.0*	*3.2*	*3.0*	*0.9*
17 Average			**79.3**	**5.8**	**3.2**	**3.0**	**0.9**
Grand Average			**82.1**	**2.9**	**3.8**	**3.9**	**1.0**

More Questions Continue on Next Page.

18		Q18 How did you first learn about Ferris?	Textual responses In Appendix.

19		Q19 What caused you to decide to attend Ferris?	Textual responses In Appendix.

20		Q20 How did you first learn about the program you are currently in?	Textual responses In Appendix.

21		Q21 Please rank the following potential reasons you decided to enter the program you are currently in. A 1 indicates your 1st reason, 2 means 2nd reason, etc. Please only rank the ones that apply to you and leave the others blank					
21	a	Q21a Rank reason: Friend suggested program	*47.0*	*38.0*	*3.7*	*3.0*	*2.1*
21	b	Q21b Rank reason: Family suggested program	*48.0*	*37.0*	*3.5*	*3.0*	*2.0*
21	c	Q21c Rank reason: Teacher suggested program	*49.0*	*36.0*	*3.7*	*3.0*	*1.9*
21	d	Q21d Rank reason: School counselor	*49.0*	*36.0*	*4.3*	*4.0*	*2.0*
21	e	Q21e Rank reason: Program's reputation/quality	*58.0*	*27.0*	*3.1*	*2.0*	*2.0*
21	f	Q21f Rank reason: Advertising	*54.0*	*31.0*	*4.9*	*6.0*	*2.1*
21	g	Q21g Rank reason: Other	*61.0*	*24.0*	*3.5*	*2.0*	*2.7*

22		Q22 If you selected "Other" in Question 21, please specify.	Textual responses In Appendix.

23		Q23 What could Ferris do to better promote the EET & CNS programs? Please rank the following ideas, ranking only the ones you think would be effective and leaving the others blank. A 1 indicates your 1st reason, 2 means 2nd reason, etc. Please only rank the ones that apply to you and leave the others blank.					
23	a	Q23a Rank idea: TV advertising	*49.0*	*36.0*	*3.1*	*2.0*	*2.2*
23	b	Q23b Rank idea: Radio advertising	*43.0*	*42.0*	*4.2*	*4.0*	*2.0*
23	c	Q23c Rank idea: Video sent to HS	*50.0*	*35.0*	*3.6*	*3.0*	*1.8*
23	d	Q23d Rank idea: Web page on Internet	*55.0*	*30.0*	*2.8*	*3.0*	*1.9*
23	e	Q23e Rank idea: Visits from FSU Admissions Rep	*49.0*	*36.0*	*3.1*	*3.0*	*1.9*
23	f	Q23f Rank idea: Host field trips to FSU to see facilities/talk to faculty	*62.0*	*23.0*	*3.1*	*3.0*	*2.0*
23	g	Q23g Rank idea: Brochures/materials sent to school counselors	*58.0*	*27.0*	*3.7*	*3.0*	*2.2*
23	h	Q23h Rank idea: Other	*21.0*	*64.0*	*4.4*	*5.0*	*2.5*

24		Q24 If you selected "Other" in Question 23, please specify.	Textual responses In Appendix.

25		Q25 What is your class standing this semester? (Please select only one.)						
		1 = Pre Freshman	responses:	(1.2%)				
		2 = Freshman	responses:	(12.2%)				
		3 = Sophomore	responses:	(14.6%)				
		4 = Junior	responses:	(30.5%)				
		5 = Senior	responses:	(35.4%)				
		6 = Post Senior	responses:	(6.1%)				
25		Q25 Class standing this semester			*82.0*	*3.0*	*4.1*	*4.0*	*1.2*

26		Q26 I would like to work on: (Please select only one.)						
		A technical sales team	responses: (3.8%)					
		A design engineering team	responses: (28.8%)					
		An engineering support & applications team	responses: (20.0%)					
		A technician team	responses: (32.5%)					
		A management team	responses: (6.3%)					
		Other - Please Specify:	responses: (8.8%)	Textual responses In Appendix.				

27		Q27 What program(s) were you accepted into when you entered Ferris? (Please select only one.)						
		CNS	responses: (41.5%)					
		EET	responses: (20.7%)					
		IET	responses: (18.3%)					
		CNS & IET (CNS primary program)	responses: (3.7%)					
		CNS & EET (CNS primary program)	responses: (7.3%)					
		IET & CNS (IET primary program)	responses: (1.2%)					
		EET & CNS (EET primary program)	responses: (3.7%)					
		Other - Please Specify:	responses: (3.7%)	Textual responses In Appendix.				

28		Q28 What program(s) are you currently accepted into? (Please select only one.)						
		CNS	responses: (45.7%)					
		EET	responses: (32.1%)					
		IET	responses: (13.6%)					
		CNS & IET (CNS primary program)	responses: (1.2%)					
		CNS & EET (CNS primary program)	responses: (6.2%)					
		IET & CNS (IET primary program)	responses: (0.0%)					
		EET & CNS (EET primary program)	responses: (1.2%)					

29		Q29 What semester of your program (or primary program) check sheet did you enter? (Give your best estimate.)						
		1 = Pre-Technical	responses: (4.9%)					
		2 = First year	responses: (57.3%)					
		3 = Second year	responses: (17.1%)					
		4 = Third year	responses: (9.8%)					
		5 = Fourth year	responses: (11%)					
29		Q29 Semester of your program check sheet entered		*82.0*	*3.0*	*2.7*	*2.0*	*1.1*

30		Q30 What semester of your program (or primary program) check sheet are you currently in? (Give your best estimate.)						
		1 = Pre-Technical	responses: (1.2%)					
		2 = First year	responses: (20.7%)					
		3 = Second year	responses: (20.7%)					
		4 = Third year	responses: (26.8%)					
		5 = Fourth year	responses: (30.5%)					
30		Q30 Semester of your program check sheet currently in		*82.0*	*3.0*	*3.7*	*4.0*	*1.2*

31		Q31 Did you plan to obtain a degree from Ferris when you entered Ferris?	
		Yes responses: (97.6%)	
		No responses: (2.4%)	
		Unsure responses: (0.0%)	

32		Q32 Do you currently plan to obtain a degree from Ferris?	
		Yes responses: (93.9%)	
		No responses: (6.1%)	
		Unsure responses: (0.0%)	

33		Q33 What are your intentions for post graduation education?	
		Not pursuing additional formal education after graduation responses: (32.9%)	
		Bachelor's in Engineering/Technology after getting AAS (IET) responses: (22.0%)	
		Another Bachelor's in Engineering/Technology/Computers responses: (6.1%)	
		Bachelor's in Business/Management responses: (0.0%)	
		Master's in Engineering/Technology after getting BS (BS-CNS or BS-EET) responses: (24.4%)	
		Other - Please Specify: responses: (14.6%)	Textual responses In Appendix.

34		Q34 Please use this space to provide additional comments. You have 2000 characters available	Textual responses In Appendix.

Sixteen of the major questions were in the positive tone with the respondents choices being: 1=Strongly Disagree, 2=Somewhat Disagree, 3=Neutral, 4=Somewhat Agree, 5=Strongly Agree. The average student response to these types of questions was 3.8 with a standard deviation of 1.0. This indicates an overall satisfaction with the programs by our students. Studying the student's responses to the other questions also supports this overall satisfaction.

Some interesting responses from the students occur in the data that warrant further investigation. For example, the students' response to question 23 is a little surprising.

23		Q23 What could Ferris do to ***better promote*** the ***EET & CNS programs***? Please rank the following ideas, ranking only the ones you think would be effective and leaving the others blank. A 1 indicates your 1st reason, 2 means 2nd reason, etc. Please only rank the ones that apply to you and leave the others blank.					
23	a	Q23a Rank idea: TV advertising	*49.0*	*36.0*	*3.1*	*2.0*	*2.2*
23	b	Q23b Rank idea: Radio advertising	*43.0*	*42.0*	*4.2*	*4.0*	*2.0*
23	c	Q23c Rank idea: Video sent to HS	*50.0*	*35.0*	*3.6*	*3.0*	*1.8*
23	d	Q23d Rank idea: Web page on Internet	*55.0*	*30.0*	*2.8*	*3.0*	*1.9*
23	e	Q23e Rank idea: Visits from FSU Admissions Rep	*49.0*	*36.0*	*3.1*	*3.0*	*1.9*
23	f	Q23f Rank idea: Host field trips to FSU to see facilities/talk to faculty	*62.0*	*23.0*	*3.1*	*3.0*	*2.0*
23	g	Q23g Rank idea: Brochures/materials sent to school counselors	*58.0*	*27.0*	*3.7*	*3.0*	*2.2*

23	h	Q23h Rank idea: Other	*21.0*	*64.0*	*4.4*	*5.0*	*2.5*

With today's student being so Internet & iPod oriented, having radio advertising ranking 4.2 and the Internet the lowest at 2.8 is surprising. This warrants further investigation.

FACULTY PERCEPTIONS[7]

Comments Summary

The general perception of the faculty is that the students are coming to the program ill-prepared for university level material and study habits. They the students are intelligent, but lack the study skills and discipline to perform well in the college environment. The opinion varies on whether this is the case with all students, or just transfers. There is the general consensus that the students have not yet learned how to learn independently.

The faculty are fairly critical of the administration. This is primarily due to the condition of facilities, lack of modern equipment, lack of release time for curriculum development, and lack of opportunity to remain in current in their field. There was some praise and much understanding on the difficult job an administrator must perform, but the overall perception was more must be done to address the aforementioned issues. There are also concerns about the use of adjunct instructors. This can be very detrimental to the program due to the lack of caring and involvement by these instructors.

The one area there is almost a unanimous perception is on facilities and equipment. From the complete lack of HVAC/R (or very nearly) to the antiquated equipment we must teach with. The feeling is that more modern equipment must be acquired to better prepare the students for what they will actually be doing in the workplace. Also it is nearly impossible to teach for 4 to 8 weeks in the fall when the lecture rooms are 90o + with no ventilation, no air-conditioning, no fans, and a strong odor of perspiration (from the previous class or the current). In the winter months many students keep there coats on during lecture because of the lack of heat. An additional lecture room is required to aid in scheduling and overcrowding. There is adequate janitorial staff and the general feeling was overwhelmingly favorable for the current secretary and technician.

Regarding the curriculum and faculty, there were few additional comments. There should be more flexibility in what is taught and more opportunity for additional training.

Detailed Comments

Administration

Administration:

→I admire our administration, but I think it would be excellent if funds/grants were set aside to assist professors pursuing a PhD. Some release time during that phase would be great as well. Then we could proceed to market the University in a much stronger manner. A dynamic/cool website is a must for a computer program. Movies, games, networking or hacking challenges, etc. all with a clean polished University look. A mini-online sample quiz to give students a feel for the information they will gain at FSU would be neat.

Administration:

Lack of back up for instructors sometimes makes scheduling difficult.
Networking is an expensive operation -- equipment costs are high and gets outdated rapidly. Money is necessary to keep the labs current. The department has recently seen a substantial improvement in secretarial support -- this is helping with program enhancements.

Administration:

The administration needs to better understand our loads and consider the cost/benefit of the use of adjuncts in this department.

Administration:

Administration must understand that our programs produce graduates that industry requires and that to do so our budget must match our equipment needs. The President's new mission statement lists serving industry as his last priority behind: Government, communities, agencies, and business. The President should look at the employment statistics and salary ranges for the graduates of the university. College of Technology and specifically EEET/CNS are near the top in salary and produce the most graduates.

Additional Comments concerning your perception of the Administration:

2) Scheduling of a course's lab in the appropriate room has been done very well.

4) Scheduling of a course's lecture in the appropriately sized room has been done very well. However, make sure the selected room has the appropriate computer, software for the course, and digital projector.

7) The Dept. budget has remained relatively flat for many years. It is wholly inadequate. I suspect the reason it has worked this long is that faculty know the scenario and no longer or rarely ask for supplies and equipment to support their courses in the way that they need or would like because there is no money available. They make do with what we have.

8) Money for professional development is inadequate. The $600+ dollars/faculty from the Dept. budget initiated by Prof. Warren Klope when he was chair was a great start but even that was inadequate. Years later the amount is still the same even though inflation just keeps going up and up. The pat answer from the administration is there is money at the Dean's office and Academic Affairs office – Academic Senate. Personally, after multiple experiences with applying for faculty development dollars from the Professional Development Committee of the Academic Senate over the years, I finally gave up applying. Lots of time was expended for the research, planning, and writing of the proposals only to be rejected. Once it was accepted but only a tiny fraction of the money needed and requested was awarded, about 1/5th. I almost turned the money back as it was so inadequate but decided to "make do again" and use it as wisely as practical.

9) Release time for faculty development is almost unavailable. Due to the greatly reduced number of faculty in the Dept since I came to Ferris and the significant number of different courses we teach, not all of my course can be covered so that I can get away for a few days for a conference, training, etc. Often getting away for a single day has been difficult.

10) Adequate provisions are NOT made for release time for course development. Zero release time has been given over many years for course development. To get release time for course development one has to work it in to a sabbatical, and very few sabbaticals are authorized each year.

11, 12, 13) These areas have improved significantly with the hiring of Steve Johnson-excellent technician (but we still need more of his time than the 60% EECN and 40% Surveying split allows), Sandy Kerridge-excellent secretary (but we still need more of her time than the 50% EECN and 50% MechDesign split allows – especially for marketing and recruitment purposes), and Chris Pommerenke (much easier to work with) from ATS even though almost all computer support for the BS-CNS is done by BS-CNS faculty.

14) Resources and help for program marketing activities are completely inadequate. We are neither skilled marketers nor recruiters. We need serious marketing and recruitment help and the time to remedy the enrollment issue. Time to recruit has dropped to almost zero for myself. With the increased time demands on myself as faculty to deliver the courses, committee work, advising, etc., I have neither been able work on marketing nor able to go out and recruit for a few years now. I think this is true for most full time faculty in the Department. When I had time to go to the TRENDS conference on a regular basis, I used it as a time to build rapport with the community college instructors and market our programs to them. When I had time, I was involved in and on various occasions sponsored the MEET-IC (Michigan Electrical / Electronics Instructor Conference). Again I used this to build rapport with the community college, career center, and high school electronics instructors and market our programs to them. I would visit a few career centers in the region. I served and still serve on advisory boards for a community college's electronics program and a career center's electronics program. In the last few years though, I have had to miss some of the advisory board meetings due to lack of time. I do not have the time anymore to do these activities that would help recruitment. I think that most of the other instructors in the Dept have similar time issues. The incoming number of students has been declining over the recent years. I have not had the time to research the causes adequately. However, I am confident that the inability to go out and market the program has had an impact on enrollment. The marketing, recruitment, and related time issue must be addressed for the growth of this program to occur.

Students

Students:

→Ferris students tend to be good hard working students. Many are first-in-family-to-college and many work extra jobs to pay the bills during school. It's not Harvard, but I'm proud to be a FSU graduate. And I'm proud to now teach at FSU after going to graduate school and engaging in very relevant work experience, professional conferences, writing a book.

Students:

As with most programs, we see a fair amount of students that are inadequately prepared -- not in lack of intelligence, but in lack of study ethic and unwillingness to read. Although tutoring services are made available, few students are willing to make the effort to take advantage of them. Few students put forth efforts in the area of professional organizations.

Students:

Students that are freshmen are better prepared than in the past. However, I find that many transfers are lacking in background and study skills.

Additional Comments concerning your perception of our students:

19) The preparedness of the incoming first year student in the program is changing. Historically, a modified bell shaped distribution curve of the preparedness of students was perceived. Each year the average and standard deviation may have changed but the general shape was perceived. Recently, the summing of two modified bell shaped curves with distinctly and significantly different averages might better describe their preparedness. Those coming prepared have better math, and science knowledge and skills than the "prepared" students in previous years. Those coming unprepared have worse math, and science knowledge and skills than the "unprepared" students in previous years. The diminishing center is an area of concern as that is where most of our students came from. From conversations with my students, those with better academic preparedness seem to: come from home schooling, transfer from other colleges, be former military, be married, have significant full time work experience, or be from farming or similar communities. Those with poorer academic preparedness seem to be recent graduates from public high schools, unmarried, have no or insignificant full time work experience, or are from large cities, suburbs, or similar communities.

20) The possession of good work ethics seems to parallel that of academic preparedness but the separation of the two bell curves is not as distinct as in academic preparedness. Historically, a modified bell shaped distribution curve of the work ethic of students was perceived. Each year the average and standard deviation may have changed but the general shape was perceived. Recently, the summing of two modified bell shaped curves with different averages might better describe their preparedness. Those coming with good work ethics have better work ethics than the similar students in previous years. Those coming with poor work ethics have worse work ethics than the similar students in previous years. Again, from conversations with my students, those with better work ethics seem to: come from home schooling, transfer from other colleges, be former military, be married, have significant full time work experience, or be from farming or similar communities. Those with poorer work ethics seem to be recent graduates from public high schools, unmarried, have no or insignificant full time work experience, or are from large cities, suburbs, or similar communities.

21) The possession of good study habits seems to be parallel that of academic preparedness and work ethic but their study habits are harder to ascertain. Students still have not learned how to learn on their own. I am amazed how many students today expect to be "spoon fed". They hardly do their reading assignments at all before the lecture or meeting on a topic. It is a major failing of the educational institutions of this country that after all those years of public school attendance that the students are not skilled in learning skills, especially self motivation, self learning and self assessment.

25) Our graduates have attained an appropriate level of maturity necessary for continued success after graduation. Most of those unwilling and or unable to learn what it takes to be a university student in our program have left. In most cases I am pleased at the maturing of the continuing students in our program. There are some interesting changes that occur in many students over the freshman year and the subsequent summer.

Facilities and Equipment

Facilities and Equipment:

→Some of the room heaters are very old/loud and there's no AC for when it's hot.

→I would actually like to see the name of the CNS program change to NES (Networks, Embedded Engineering, and Software Security). I think those are the three areas that are exciting to students, and would set FSU's computer program head and shoulders above competing Universities such as GVSU, Calvin, Central, Western, Cornerstone, Hope, etc. This change wouldn't require an extensive rework. Change/add/merge a few classes would do the trick. I believe this would allow us to market, attract, and place students and an elevated rate of success.

→FSU CNS/EET faculty are a hard working team with solid educations and strong industry backgrounds. One complaint I have is that our load is a bit heavy to allow for any serious in-field research projects, teaching is more than a fulltime job (especially for a new instructor such as me.) One other slight issue is that we each go so deep in our respective classes that if one of us is sick there's no way that one of the other faculty members can step in and give that days lecture, especially at the junior and senior level. But we always try to make up the material if that happens so I guess it's not the end of the world to have to cancel one days lectures/labs.

Facilities:

We only have one letter out of HVAC/R and the heating is marginal at best. I cancel class if the room is over 90 degrees because the students cannot concentrate while sitting there sweating and breathing the previous class' B/O. Equipment still says Ferris State College or Ferris Institute. Much has changed since those days in the electronics field. You can't teach aeronautical engineers with WWI Gennies.

Facilities:

We need an additional lecture room, our resources are too constrained. The fifth floor has a new lecture room that should be made available to our department.

Facilities:

We have an excellent secretary. However, she is shared with Mechanical. We need her to devote all of her time to EEET/CNS. She actually has three programs. Our technician is the best I have encountered and far exceeds our expectations. However, he is shared with surveying. We need him to devote all his talent to EEET/CNS as our networking, equipment needs have grown.

Facilities and Equipment:

The Department Technician does a great job with lab equipment and set up.
HVACR is woefully inadequate, rooms overheat easily regardless of outdoor temperature and without A/C there is no way to correct on warm days. Sometimes the labs are so hot that students are sweating while working on the equipment.
Instructor podiums and associated equipment is antiquated.

Additional Comments concerning your perception of the Facilities and Equipment:

30, 31) The janitorial staff has done a good job of keeping the rooms clean. The neatness of the room is a function of who takes primary responsibility for a room. Some faculty keep their labs neat and others do not. The lack of storage facilities for larger items causes some rooms to be cluttered and lack neatness. The clutter and lack of neatness do not make for a good image to prospective students and visitors.

32, 33) The renovation of the fourth floor of Swan building was successfully planned, proposed, and advocated via Prof. Warren Klope (Chair) to the Administration which sought and received Board of Trustee Approval for the project. Prof. Klope retired from the Chair position and Assoc. Prof Ron McKean subsequently became Chair. Assoc Prof. McKean successfully continued the planning and oversaw the building of the vastly improved lecture, laboratory, and office facilities. The improvements were significant for the safety of the student and equipment, extension of three-phase power from one to at least three rooms, the marketability of the programs through modern appearing facilities, and improved daily operations of the instructional activity. The improvements have been greatly appreciated.

35) The lecture materials and supplies are very good.

37) Storage is inadequate. There is sufficient space for small items but medium and larger sized items are a real problem. Equipment must be kept in the isles and center of some lab rooms. The tech's room becomes crowded because there is insufficient room to put carts, projects under work, etc.

38) SWN 404 has one small room air conditioner that is wholly inadequate for the room. You hope you are the lucky one to get the room in the morning because the A/C has had all night to cool the room down. SWN 415 has no air conditioner what so ever. Note that most of the rooms on the fourth floor have very small windows in them compared to other floors in Swan Building. The small windows hamper the air flow. Take a look at the windows in most of these rooms just to see how small they are. We need some A/C or fans with much better cubic feet / minute air flow for those rooms.

39, 40, 41) Lighting, white boards, and noise control in the lecture rooms are very good as a result of the renovation of the fourth floor a few years ago.

42) Audio-Visual equipment in the lecture rooms are good (SWN 404) and fair (SNW 415). These rooms need the upgrade to the smart classroom that the President has initiated. Some, but maybe not all, labs need audio-visual equipment. Certain activities such as demonstrating personal computer based laboratory equipment as well as software programming and utilization requires a digital projector with sound output.

43) Lighting in the lab rooms is very good as a result of the renovation of the fourth floor a few years ago.

Curriculum

Curriculum:

EET curriculum needs more flexibility for student specialization.

Faculty

Additional Comments concerning your perception of the Faculty:

51, 52, 53, 54) The faculty are technically very competent, know how to teach, and are prepared for classes. This is noteworthy considering the wide range of topics and courses delivered by the Department.

ADVISOR COMMITTEE PERCEPTIONS[2]

The EET & CNS Department prides itself on having active industrial advisors from many different industries in Michigan and the Midwest. The EET and CNS programs have members from Allstate Insurance Company, Cisco Systems, Dow Corning, National Instruments, Gentex, Rockwell Automation, GE Aerospace, Bekum America Corporation and others. These companies provide input on technical issues that are regional, national and international in scope. These committees typically meet twice a year: once in the fall for a business meeting that covers academic and industry issues. The meeting in the spring is typically held during senior project presentation day and is a mix of business and gaining critical assessment information on student performance in senior project presentations. This industrial feedback is a critical component to our assessment model used for TAC-ABET accreditation.

Because of the 2 + 2 nature of the IET/BSEET programs, there is one advisory committee for both programs. Additionally, the CNS program has its own committee. There is overlap in these committees because the EET/CNS fields tend to overlap in the real world. There are 10 members on the EET advisory committee and 8 on the CNS committee with 4 members shared between the two committees.

The survey was carried out during the Fall Semester of 2007. The EET and CNS advisory committees were asked to response with a rating and comments associated with several questions. The questions that have a rating (not all do) are on a 1 to 5 scale with 1 being "Poor" and a 5 being "Excellent." Representative comments are given in this section. The actual survey with results can be referenced in the Appendix.

IET / EET Survey Results

There was a 70% return rate for this survey.

Question 1: How would you rate the curriculum of the IET program? Rating: 3.71

"The curriculum for the IET program covers the essentials with a positive balance of core classes necessary for a well rounded education needed for the business world."

"Provides a solid foundation for future education: be it collegiate or on the job."

"I think it's OK. It might be good to show more of the practical side in the classroom: IE programming actual robots, Etc."

Question 2: How would you rate the curriculum of the BSEET program? Rating: 4.00

"Some thoughts about robotics beyond the IET classes come to mind."

"The curriculum for the BSEET program is excellent for a strong understanding in the branches of EET."

"I think it offers a diversity of options for the student and a good basis for further education by the perspective employer."

Question 3: How would you rate the quality of the equipment used in both programs? Rating: 4.00

"Quite a bit of the lab equipment is relatively current."

"It is very difficult to maintain state-of-the-art equipment, but the equipment provided exposes the student to the functions of the equipment."

"Need more money!"

Question 4: How would you rate the quality of the facilities for both programs? Rating: 4.29

"The facilities could use an "overhaul" in terms of appearance, location, and teaching resources."

"The facilities are practical for a learning environment. Upgrades to classrooms and labs are all benefits to a positive learning atmosphere."

"Has greatly improved over the years."

Question 5: For both programs, are the outcomes appropriate for current industrial practice? Rating: 4.00

"There is (and will probably always be) a gap between walking out of college and what the real world does."

"Probably an area we need to address as a full committee with some formal study/industry survey."

"In my experience, the program is not as important as getting a degree. Showing an employer that you have the initiative to stick with a program is essential."

THE NEXT TWO QUESTIONS ARE NOT RATED

Question 6: What micro or macro trends do you see in your industry that might affect job placement?

"People who can design and build manufacturing machinery continue to be in high demand."

"More software skills are in demand every day. That fact combined with overall decreasing manufacturing activity in Michigan means that the opportunity for jobs lies in advanced manufacturing and services, both of which require heavy amounts of software and math."

"Aerospace and probably other sectors are rapidly moving to embedded systems placing more emphasis on software skills and knowledge."

"I have seen more openings for PCB designers and program managers than automation and programming at the engineer level."

Question 7: How might we improve the IET and BSEET programs?

"Emphasize the applications of lectures and labs as they apply to industrial practices."

"Better preparation for behavioral interviewing. Better communication / presentation training."

"Continue to engage advisory committee and continue to look at equipment used in the coursework."

"Continue to emphasize core electrical and mechanical debugging skills, which today lie at the heart of the current programs. Leverage the CNS resources to identify which semiconductor technologies affect our industrial world and create projects and curriculum to combine the "debugging" topic with customizing today's IE technology that drives industry adoption of cost-effective technology".

CNS Survey Results

There was a 62.5% return rate for this survey.

Question 1: How would you rate the curriculum of the CNS Program? Rating: 4.40

""Excellent curriculum focused on a strong and growing branch of engineering."

"The program is yielding expectations as planned. Your top graduating students are doing very well across various industries and that is a testimonial statement to the program itself, and perhaps, the best way to quantify real results."

Question 2: How would you rate the quality of the equipment used in the CNS program? Rating: 3.60

"Average. Need to continue updating equipment continually."

"I think you have what is needed to run current program. It would be best to have the best and latest equipment but they will require continuous funding. I see a lacking in the VoIP space and I'm not too sure of the security space. Current industry trends focus on "converges network" and that may require various forms on smaller gadgets. Additionally, you should look into software engineering in the network space. This will take away the perception of driving certification like a trade school and bringing back the foundation of an engineering school."

Question 3: How would you rate the quality of the facilities for the CNS program? Rating: 4.00

"Facilities aged a bit but certainly improving. OK."

"The facilities are getting better each year and I particularly like the small lab used by senior students. That should also be a place used to nurture team work among graduating students."

Question 4: For the CNS program, are the outcomes appropriate for current industrial practice? Rating: 4.20

"I really do think so."

"Yes. Moving forward, you might want to focus more in the network/systems security space. There is a whole market to be captured in that area and it takes a very different strategy to establish a strong foundation for this program. I suspect the network structure in place serve as a stepping stone to branch into this new area of study."

THE NEXT TWO QUESTIONS ARE NOT RATED

Question 5: What micro or macro trends do you see in your industry that might affect job placement?

"Acceptance of commercial Ethernet technologies on plant floor and mixing with plant floor equipment. Multi cultural exchanges – 2nd language."

"In my industry, graduates will increasingly need to stay abreast of the dramatic shifts in software development practices and techniques especially the use of and integration with open source. And also the migration of hardware design from traditional to fields like MEMS, optical and bio-electric bio mech"

"Currently, off-shore sourcing is still the biggest threats. Infrastructure work such as data network is still going strong with domestic market. I see the area of network and data security has a lot of potential and good IT security engineer should have a very strong foundation in network engineering. NCS may want to leverage your current environment and expand into the data security area.

"Another area that I've seen growing in demand is in the network/system performance space. There is no real investment in this area. In the past 10 years, industry has been concentrating on building and expanding network paying little attention to measurement and performance. Now that the infrastructures are built and ready to roll with all kinds of applications, they are seeing problems."

Question 6: How might we improve the CNS program?

"Marketing CNS!!! People need to know what Ferris State and CNS is about. I think we have the program and the strategy but high schools and junior college students need to know."

"I recommend bringing in successful alumnus back to attend targeted high schools and junior college campuses. Real personal conversation cannot be substituted with technology and papers. I can help drive this strategy if you need to. I've done local high school presentations and they are effective in driving good kids to school. The military understands that and CNS should study their strategy."

"Go international! I've aid that many times in the past year. Leverage the global market and expand your segment."

"Be sure that there are established mechanisms in place to monitor the industry and through a feedback loop of sorts keep the curriculum in step with current tech and trends."

Section 3: Program Profile

PROFILE OF STUDENTS[2]

The EET & CNS Department works very hard to provide its diverse student body with a strong technical curriculum that emphasizes practical, usable skills that prepare the graduate to analyze synthesize and problem solve within their discipline. Ours students come primarily from Michigan and most pursue their careers in Michigan. Our student enrollment is reflected from the overall enrollment at the university. Roughly 90% of our students come from Michigan with another 5% coming from out of state and 5% coming from Africa, Asia, Europe, and the Middle East. About 5% is female.

The department accepts students with a minimum ACT composite score of 18 currently with that moving to 19 for the 2008-09 admission year.

ENROLLMENT[2]

The IET, EET and CNS enrollment for the past five years is shown below. The CNS program started in 1996, the EET program in 1984 and the IET program have been in existence for over 30 years.

On campus enrollment for IET, EET and CNS programs:

	2003/04	2004/05	2005/06	2006/07	2007/08
CNS	95	86	91	81	73
EET	31	28	17	22	33
IET	54	43	56	43	47
Pretech (all)	14	14	19	19	9
Totals	194	171	183	165	162

Data taken from the 2007-08 Fact Book published by FSU

PROGRAM CAPACITY[2]

The capacity for each of the programs is as follows:

CNS 88

EET 48

IET 56

Data taken from College of Technology Admission Criteria

RETENTION AND GRADUATION[2]

The degrees conferred by program are listed below:

	2004/05	2005/06	2006/07
CNS	8	10	15
EET	18	7	15
IET	3	15	9

Data taken from the Fact Book 2007-08

The total graduation numbers have seen a steady increase as reported by the Fact Book. The data does not indicate that many of the IET graduates continue on in the EET program to obtain their bachelors degree. Even through some students complete the requirements for the associate degree, they do not apply for the degree. The numbers can be skewed by this fact.

Retention numbers are not readily available at the program level. One indicator that is used in the department in the number lab sections fill from semester to semester. From the freshman to sophomore year, there is generally a decrease in the number of lab sections but then the numbers tend to stabilize to the end of the program. This indicates that almost all of the attrition takes place at the beginning of the program. In the CNS program, this trend will continue through the senior year. In the EET program, there are years when the number of section increase in the junior. This is generally due to the fact that we get a number of transfer students enrolling from other associate degree programs.

ACCESS[1]

Access to the IET, EET and CNS programs are specified on the respective program Internet homepages for prospective FSU students, as well as transferees from other programs within FSU. These sites are outlined below:

Industrial Electronics Technology (IET):
http://catalog.ferris.edu/programs/228/

Electrical and Electronics Technology (EET):
http://catalog.ferris.edu/programs/263/

Computer Networks and Systems (CNS):
http://catalog.ferris.edu/programs/261/

In addition, articulation agreements with community colleges and technical and vocational programs statewide are available to students with easy to find course translations at the following FSU website:
http://www.ferris.edu/admissions/articulation/

The IET program has the following basic requirements for prospective students:

- High School Diploma or equivalent
- Two years of math, including algebra and trigonometry
- Minimum ACT math score of 19

The EET program has the following basic requirements for prospective students:

- An associates degree in a related program (usually IET)
- Minimum GPA of 2.0 in the associates degree
- Transferable mathematics courses through pre-calculus

The CNS program has the following basic requirements for prospective students:

- High School Diploma or equivalent
- Two years of math, including algebra and trigonometry
- Minimum ACT math score of 19

CURRICULUM[1]

The CNS curriculum is comprised of a total of 135 credits for a typical 4-year Bachelor's of Science degree. This includes 54 credits outside the core classes in the CNS degree program. As with both IET and EET programs, the CNS program is balanced between theory and application. Hands-on learning is a staple in this program. Students will spend approximately 2 to 3 hours in a laboratory for each core class per week. The entire CNS course roadmap, otherwise known as the "check sheet," is attached in the appendix of this document for further review.

The IET / EET program curriculum has a dual nature. Specifically, the Industrial Electronics Technology major is a two-year AAS (Associates in Applied Science) which is comprised of 63 credit hours. Of the total credit hours, 39 are dedicated to core courses in the curriculum.

The EET program requires a minimum of 131 credits to earn a Bachelor's of Science degree. This includes the 63 credit hours from the IET AAS degree. Therefore, a student can receive an IET AAS degree in two years, and then spend two more years to earn a BSEET degree. The majority of the students in the IET/EET program follow this roadmap. The entire IET and EET course roadmap, otherwise known as the "check sheet," is attached in the appendix of this document for further review.

Validation of the EET curriculum is bolstered by the full accreditation by the Technology Accreditation Commission of the Accreditation Board for Engineering and Technology (TAC-ABET). Curriculum content, as well as several other factors, are considered by the accreditation board, which certifies the program on an ongoing basis. The EET program is one of two in the State of Michigan that has achieved this type of accreditation. For a detailed list of TAC-ABET criteria, please see the section "Program Visibility and Distinctiveness."

For all programs (IET, EET and CNS), the detailed curriculum and course substance is reviewed by the EET & CNS Advisory Board for input. The advisors are the first line of input to the faculty and chair of the department for advice on the changing nature of the technology that is used in industry. The EET & CNS programs must be sensitive to the nature of the rapidly changing frontier of electronics and network systems, as new standards, methods and applications are constantly evolving.

QUALITY OF INSTRUCTION[1]

The EET & CNS department has a total of eight faculty members, five of which are fully tenured. In addition, the department brings in adjunct faculty as needed to fulfill the load requirements of the particular academic year. The quality of instruction can be measured by two specific benchmarks. First and foremost, the accreditation given by the Technology Accreditation Commission of the Accreditation Board for Engineering and Technology (TAC-ABET) should be noted. This achievement is noteworthy not only for its prominence and importance to the College of Technology, but also for the fact that the EET program at FSU is one of only two Electrical Engineering Technology programs accredited in the entire state of Michigan.

Since the EET & CNS curriculum has much in common between the two degree programs, it should be quite apparent that students have much to gain in terms of the quality of the instruction they receive, as most of the faculty members in the department cross pollinate in teaching both sides of the program. Fundamentally, the CNS students are fortified by the solid instruction on the hardware platforms necessary for Computer Networks and Systems given by the EET side of the curriculum. Likewise, the IET/EET students gain in a similar manner by receiving instruction by the CNS influenced networking side of the house.

A key course in the EET & CNS curriculum is EEET-418/EEET-428. This combination course sequence is the project management (EEET-418) and senior design (EEET-428) capstone course. The purpose of this series of courses is to enable students to use their project management skills combined with engineering expertise to solve a real-world problem in a group dynamic. The seniors who must all take this course are required to manage the project in parallel with engineering the task and present results. The boundaries of this course sequence are not rigid, and students have the freedom to make decisions as they would in a real work environment. Assessment from the EET & CNS advisory board and outside firms that hire our graduates all indicate that this type of quality of instruction is indispensable in the current industry environment.

One of the greatest assets of the faculty in the EET & CNS department is their respective work experiences. Over 100 years of combined work experience is available to the students from the faculty. Combining this work experience with teaching provides the students in the program a unique opportunity to not only learn the theory associated with the EET & CNS curriculum, but to also gain the insight into how things actually work in a real engineering environment; all from a first person perspective. Some student comments are outlined below from the graduate survey. A complete listing of graduate survey remarks can be found in the appendix.

> *"The practical experience I gained from professors that have worked in industry was one of the most valuable things I took away from FSU. I was given credit for 1 year experience straight out of school due to that factor.*

We were taught real skills that translated directly to the outside world and employers recognized that."

"The BSEET program opened many doors that my work experience would have never allowed. They both complimented each other and have helped me in many options. I have started a new plant from ground up, taken on QA role for Electrical Components for Office Furniture. Changed directions into Controls for Tempering Lines for Automotive Glass. I have utilized all of my knowledge to have successful platform launches for new vehicles and now currently Area Coordinator for the Tempering lines, managing production associates, engineering and maintenance to meet customer expectations."

COMPOSITION AND QUALITY OF FACULTY[1]

The EET & CNS programs have eight full-time faculty members. Of the eight, five are fully tenured and the remaining three are tenure track. All of the faculty members have a minimum of a Master's degree in their respective educational repertoires. One of the faculty members is currently pursuing a PhD (DeMott). The composition of the faculty includes experiences in industry, government and academia. Specific areas of importance are industry experience, publications, government assignments and leadership positions. A complete listing of EET & CNS faculty curriculum vitae can be found in the appendix.

Although the educational achievements of the faculty are noteworthy, it should also be noted that the faculty has a combined work experience of over 100 years. This work experience is important for several factors. Students in the EET & CNS programs are more receptive to faculty that understand the importance of theory and also how it is applied in real engineering situations. The quality of instruction is a direct reflection of the student's ability to learn and therefore also is a measure of the quality of the faculty. This assertion is also upheld by graduate student feedback seen in the graduate survey questionnaire. An excerpt from the questionnaire is quoted below and the entire questionnaire can be found in the appendix.

> *"The practical experience I gained from professors that have worked in industry was one of the most valuable things I took away from FSU. I was given credit for 1 year experience straight out of school due to that factor. We were taught real skills that translated directly to the outside world and employers recognized that."*

Publications from the EET & CNS faculty are another measure of quality. The EET & CNS faculty has accomplished publications in areas such as:

- Textbook Authoring
- Patent Disclosures
- Research Journals
- Industry Trade Journals
- Internal Industry Publications
- FSU Publications
- Laboratory Manuals

In addition to being authors of the previously mentioned publications, EET & CNS faculty have been involved in editing and assisting publishers with new textbook editions before publication.

Several of the faculty members in the program have had work experiences within the U.S. Government. Although this could be included with general industry experience, it should be noted that this type of experience is expressly highlighted in light of the

nature of parts of the CNS curriculum. Many of the courses under the CNS umbrella have importance in areas of homeland security. To facilitate these types of courses with high quality faculty not only bolsters the image of the program within the University, but also to prospective students seeking the highest quality education.

Experiences in leadership roles within the faculty of the EET & CNS department are ubiquitous. Several faculty members have held leadership positions while in industry, including areas of general management, project management and technology. This broad type of experience is influential not only inside the EET & CNS programs, but also in areas of University committees, appointments and interactive roles between programs.

It should also be highlighted that the accreditation given by the Technology Accreditation Commission of the Accreditation Board for Engineering and Technology (TAC-ABET) is not only an indication of the overall health of the program, but that the quality of faculty is factored into this accomplishment. Prospective students are assured that the program as a whole has been assessed, including the quality of the faculty. From a purely teaching standpoint, the EET & CNS programs have more than 75 years of combined experience, some of which has been accrued outside FSU.

SERVICE TO NON-MAJORS[2]

The EET & CNS Department offers three courses to non-majors in the MET, PDET, HVACR, PLTS, MFG, WELD. The courses are EEET 115, EEET 201, EEET 301. Only HVACR take EEET 115. The other programs take a combination of 201 and 301. The numbers are large enough that collectively the student credit hours produced amount to about 25% of the student credit hours produced in the department in a semester.

DEGREE PROGRAM COST AND PRODUCTIVITY DATA[2]

Available data from Institutional Research and Testing included only one year of information for the 2003-04 school year. The data are broken into costs for the BS in EET and BS in CNS. For the time period reported, the two programs had "tracks" students could follow. Since then, the tracks have been eliminated from the CNS program.

Program	Track	Total Cost per Student Credit Hour
EET	Automation	$210.73
EET	Tech. Integration	$193.82
CNS	Embedded Systems	$219.24
CNS	Automation	$225.06
CNS	Info. Systems	$226.98

The average for all tracks within the programs is $215.17. This data is difficult to compare to today's costs because of the dated information. Also, without knowing the average cost of other programs across the university, it is difficult to compare to other programs as a whole.

ASSESSMENT AND EVALUATION[2]

The EET & CNS department has a formalized procedure for assessment and evaluation within the department. The BSEET program is accredited by TAC-ABET and has adopted their model for outcomes assessment. Because the IET and BSEET programs are tied together in a 2 + 2 format, the assessment model used in the BSEET program is used in the IET program by default. Following is the description of the continuous Improvement Plan adopted by the department for the EET program.

The CNS program has adopted an assessment model that is different than the EET program, but many assessed courses are shared between the CNS and the EET programs. Because the CNS program uses courses that are provided through the Cisco Networking Academy, assessment used by Cisco is used in CNS along with assessment used in the EET program.

The Cisco Networking Academy Program is a comprehensive e-learning program that provides students with the Internet technology skills essential in a global economy. The Networking Academy delivers web-based content, online assessment, student performance tracking, hands-on labs, instructor training and support, and preparation for industry standard certifications.

The Networking Academy program continually raises the bar on e-learning and educational processes. Through community feedback and electronic assessment, the Academy program adapts curriculum to improve outcomes and student achievement. The Academy infrastructure is designed to deliver a rich, interactive, and personalized curriculum to students around the world. The Internet has the power to change the way people learn, work, and play, and the Cisco Networking Academy Program is in the forefront of this transformation.

Following are the program educational objectives and program outcomes for both the EET and CNS programs. They are modeled after a combination of both TAC-ABET and Cisco assessment models.

Continuous Improvement Plan

Program Educational Objectives

Goals of the BS EET and CNS Programs graduate include:

1. Employment in a discipline appropriate to the degree.
2. Achieve recognition as a valued employee through varied forms of promotion or merit.
3. Demonstrate high standard of ethical and social values.
4. Ability and desire to continue education through varied means including advanced degrees.

Objective	Frequency	Evaluation
1. Employment in a discipline appropriate to the degree.	Annual	Graduate Exit Survey Alumni Survey Advisor Committee Input Academic Program Review
2. Achieve recognition as a valued employee through varied forms of promotion or merit.	Annual	Alumni Survey Advisor Committee Input
3. Demonstrate high standard of ethical and social values.	Annual	Alumni Survey Advisor Committee Input
4. Ability and desire to continue education through varied means including advanced degrees.	Annual	Alumni Survey Advisor Committee Input

Program Outcomes

Each program student will demonstrate before graduation:

a) An appropriate mastery of the knowledge, techniques, skills and modern tools of their disciplines.
b) An ability to apply current knowledge and adapt to emerging applications of mathematics, science, engineering and technology.
c) An ability to conduct, analyze and interpret experiments and apply experimental results to improve processes.
d) An ability to apply creativity in the design of systems, components or processes appropriate to program objectives.
e) An ability to function effectively on teams,
f) An ability to identify, analyze and solve technical problems.
g) An ability to communicate effectively.
h) Recognition of the need for, and an ability to engage in lifelong learning.
i) An ability to understand professional, ethical and social responsibilities.
j) A respect for diversity and knowledge of contemporary professional, societal and global issues.
k) A commitment to quality, timeliness, and continuous improvement.
l) The application of circuit analysis and design, computer programming, associated software, analog and digital electronics, microcomputers to the building, testing, operation, and maintenance of electrical and computer systems.
m) The applications of physics or chemistry to electrical and computer circuits in a rigorous mathematical environment at or above the level of algebra or trigonometry.
n) The ability to analyze, design, and implement control systems, instrumentation systems, communication systems, computer systems, or power systems.
o) The ability to apply project management techniques to systems.
p) The ability to utilize statistics/probability, transform methods, discrete mathematics, or applied differential equations is support of electrical and computer systems.

Courses have been selected to measure students' knowledge and skills in the above areas.

ADMINISTRATION EFFECTIVENESS[1]

The EET & CNS department employs a department chair hierarchy instead of a directed department head. The department chair is a member of the faculty which has the privilege of 75% release time from teaching duties. In addition to this release time, the department chair also has the distinction of serving over the summer timeframe, as classes are not offered by the program during this time.

The release time given to the department chair enables the holder of that position to assume several key duties, including:

- Assigning future schedules for faculty, courses, classrooms and labs.
- Facilitation of departmental meetings.
- Liaison for EET & CNS department to Dean's Office and other programs.
- Coordinator for office assistants.
- Lead contact and interface to EET & CNS Advisory Board.
- Facilitator for EET & CNS recruiting and program marketing.
- Face of EET & CNS department for visiting prospective students and interested parties.
- Manager of EET & CNS yearly budget.

Although the department chair is not in an authoritative position for directing assessment, promotion or discipline of faculty members in the department, the position rather requires cooperation from the other faculty members to operate effectively. This arrangement has worked for many years in the College of Technology and is supported by the faculty in the EET & CNS programs.

Section 4: Facilities and Equipment

INSTRUCTIONAL ENVIRONMENT[5,6]

Electronics Department Lab Facilities Summary:

The Ferris State University's EET/CNS department maintains eight Lab facilities. Five Electronics Labs: The Analog Multi-Purpose Lab, Communications Lab, Multi-Purpose Lab, Industrial Automation Lab, and the Automation Power Lab; and Three Computer Networking Labs. These labs are . . .

401 Computer Lab
This lab is mainly used for Operating Systems training.
Stations:
12 unsupported computer workstations.
Computer resources:
All computers have their operating systems installed as part of the appropriate class. Typically, QNX, UNIX, or Linux variants. Computers have access to the Internet via a hub (shared connection).

402 CNS Network Lab
This lab is mainly used for advanced computer network design and implementation training.
Stations:
15 unsupported computer workstations.
Resources available in the room:
Cisco routers including models 4000 (14), AS5200, 2500 (2), 871W (3); Nortel/Bay Networks ATM Centillion switch models 100 (3) and 50; Verilink Access System 2000 (4), WatchGuard Firebox 1000, Lucent Superpipe, Adtran TSU ACE (2), Adtran Atlas 550*, Lucent Cajun P120 Switch, and assorted wireless equipment, hubs, switches, modems, and phones.
*Adtran Atlas 550 is shared with Lab 403 based on semester.
Computer resources:
All computers have their operating systems installed as part of the appropriate class, typically, UNIX or Linux variants and Microsoft Server variants as well as XP. Computers have access to the Internet via three shared connections.

403 CNS Network Lab
This lab is mainly used for the basic computer network design and implementation training – primarily the first four networking classes.
Stations:
22 unsupported computer workstations, 20 for students, one instructor and one instructor student assistant.
Resources available in the room:
Cisco routers and switches including models 2620 (4), 2621, 4000 (8), 2950 (2), 2900XL (4); Adtran Atlas 550*, Lucent Cajun P120 Switch, assorted hubs, Fluke

test equipment including models 620 (11), Linkrunner (5), NetTool (4), 110 (11), and DSP-4000.
*Adtran Atlas 550 is shared with Lab 402 based on semester.
Computer resources:
All computers have basic Microsoft Windows XP with minimal software installation only to support the networking class. Computers have shared (switched) access to the Internet and there is a printer networked in the room.

416 Analog Multi-Purpose Lab
This lab is mainly used for introduction to electronics and data acquisition. Each station is equipped with the general tools needed for analog testing and PC data acquisition.
Stations:

9 student stations plus 1 Instructor station; Each student station contains: PC with data acquisition (3 USB, 6 PCI), NI Elvis, Oscilloscope, 3-output power supply, 2 DMMs, Function generator, 120v VariAC, and Isolation Transformer.

Resources available in the room:

Fixed voltage 3-phase power; Analog meters; Decade boxes of resistance, capacitance, and inductance; Curve tracers; LC Meter; Soldering equipment; and Feedback equipment containing amplifiers, sensors, and motors.

Computer resources:

Standard Microsoft Windows XP set up with MS Office, MS Visual Studio, Novell, and Acrobat Professional. *Electronic software*: PSpice, NI Circuit Design Suite, NI Elvis, NI MultiSim, and NI LabView. Computers have access to the Internet and there is a printer networked in the room.

411 Communications Lab
This lab is used for communications, troubleshooting, and microprocessor training. Each station is equipped with the general tools needed for analog testing and data acquisition with access to communication test equipment.
Stations:

8 student stations; Each station contains: PC with data acquisition (4 USB, 4 PCI), NI Elvis, Oscilloscope, 2 3-output power supply, 2-output power supply, 2 DMMs, Function generator.

Resources available in the room:

Decade boxes of resistance and capacitance, LC Meter, M68HC11 trainers, Breadboard trainers, Spectrum analyzer, Transistor testers, RF generators, AM/FM stereo analyzers, Distortion analyzer, Signal generators, Counters, Isolation transformers, and 120v VariAC.

Computer resources:

Standard Microsoft Windows XP set up with MS Office, MS Visual Studio, Novell, and Acrobat Professional. *Electronic software*: PSpice, DADiSP, AEVM112 Development kit, MiniIDE, NI Circuit Design Suite, NI Elvis, NI

MultiSim, and NI LabView. Computers have access to the Internet and there is a printer networked in the room.

408 Multi-Purpose Lab

This Lab is a general purpose lab where most of the equipment is not fixed to the bench. This is mainly the microprocessor and digital lab with logic analyzers and software programming packages. This lab is also used for our CNS classes where networking resources are needed. Equipment set up and available dependent on the project.

Stations:

12 student stations plus Instructor station; Each station contains: PC with data acquisition (all 12 USB), NI Elvis.

Resources available in the room:

Oscilloscopes, Function generators, DMMs, Power supplies, uP trainers, Logic analyzers, Pulsers, probes, Universal programmers.

Computer resources:

Standard Microsoft Windows XP set up with MS Office, MS Visual Studio, Novell, and Acrobat Professional. *Electronic software*: PSpice, NI Circuit Design Suite, NI Elvis, NI MultiSim, and NI LabView, XILINX ISE/ModelSim, FPGA Advantage, Intel microcontroller ApBuilder, Automation Studio, and HBGary Inspector. Computers have access to the Internet and there is a printer networked in the room.

406 Industrial Lab

This lab provides compressed air for some of our industrial automation projects, relay training and small motor control.

Stations:

8 student stations; Each station contains: PC, Oscilloscope, 3-output power supply, DMM, Function generator.

Resources available in the room:

Fixed voltage 3 phase power, House compressed air, Decade boxes of resistance and capacitance, Analog meters, VariACs, Relay trainers, Motor controller trainers, Petra automation factory, PLCs, Automation parts (relays, switches, sensors).

Computer resources:

Standard Microsoft Windows XP set up with MS Office, MS Visual Studio, Novell, and Acrobat Professional. *Electronic software*: PSpice, DADiSP, NI Circuit Design Suite, NI Elvis, NI MultiSim, and NI LabView, Rockwell automation software. Computers have access to the Internet and there is a printer networked in the room.

413 Automation Power Lab

This lab provides controlled three phase power, PLC training with control net and device net networks, and the Universal Laboratory Machine for large motor control.

Stations:

9 student stations; Each station contains: PC, Oscilloscope, 2 power supplies, DMM, Function generator, and Universal counter, VariAC 3-phase power, and 8 stations of the Universal Laboratory Machine.

Resources available in the room:

Decade boxes of resistance, capacitance, and inductance, Analog meters, Watt meters, Clamp on Amp/Watt meters, 3-phase light fixtures, Generators, Motors, PLCs (PLC I/O, Control net, Device net, displays, servo controllers), Automation parts (relays, switches, sensors, etc).

Computer resources:

Standard Microsoft Windows XP set up with MS Office, MS Visual Studio, Novell, and Acrobat Professional. *Electronic software*: PSpice, DADiSP, NI Circuit Design Suite, NI Elvis, NI MultiSim, and NI LabView, Rockwell automation software. Computers have access to the Internet and there is a printer networked in the room.

COMPUTER ACCESS AND AVAILABILITY[2]

The EET & CNS department maintains eight laboratories and two lecture rooms for the IET, EET and CNS programs. Each of the laboratories has unique equipment but most are multipurpose in nature. The eight laboratories have a totally of 94 computers. These computers are all tied to the Internet and the laboratories are open on a scheduled basis for coursework. Depending on semester, one or two labs are open in the evening: typically between 6 and 9 p.m.

The department maintains a lounge for student, faculty and staff use. There are two computers located in this room that are available from 8:00 a.m. to 5:00 p.m. daily and during open lab hours in the evening. There are two computers in two lecture rooms that are used for lectures and presentations. These presentations systems are available to students on a scheduled basis.

In the administrative and technician offices there are five computers used by the department chair, secretary, technician and students assistances. The two computers used by the student assistances are also available for faculty to use. Each faculty member (eight) has a desktop or laptop computer for their personal use.

In total, the department maintains 111 computers. Over 85% of these computers are available to students during the work day and early evening. All are connected or can be connected to the Internet.

OTHER INSTRUCTIONAL TECHNOLOGY[1]

The EET & CNS department is housed on the 4th floor of the Swan Technology building and has two main classrooms and eight laboratories. Being that this curriculum is heavily laboratory oriented, the technology used in the laboratories is paramount and worthy of note. Both instructional classrooms have LCD projection technology. A new "Sympodium" lecture aid will be added in the fall semester of 2008.

The laboratories facilitate several aspects of the curriculum that can be classified as follows:

- Communications Electronics
- Digital Electronics
- Networking Hardware
- Wireless Networking
- Electric Machines and Three Phase
- Electronics and Electricity
- Instrumentation and Data Acquisition
- High Level Networking and Interfacing

These laboratories incorporate test equipment, instructional apparatus, and instrumentation that has a replacement cost that is in the hundreds of thousands of dollars. Maintenance of this equipment is paramount and a key mission of the department and the EET & CNS programs. The department has a full-time instrument technician whose role is to maintain and calibrate the department's equipment, among other tasks.

To maintain a program that has relevance to current technological trends requires the replacement and upgrading of the laboratory equipment on a prudent and cost-effective basis. The EET & CNS programs must continue to be vigilant in asserting the need to keep these laboratories effective to not only maintain a high quality of instruction, but to also recruit and retain students in the program.

LIBRARY RESOURCES[1]

The EET & CNS program's utilization of Ferris State University's FLITE (Library for Information, Technology and Education) is mainly through the student's use of library resources on an as-needed basis. The use of these resources for periodical research, journal searches and textbook utilization varies from course to course.

FLITE also provides a sizable computer resource for students working on course specific projects. The FLITE computers provide a suite of Microsoft software that covers the basic needs of students, such as spreadsheets and word processors. The FLITE computers also have specialized software requested by the EET & CNS department such as Microsoft Project for use in the EEET-418 project management class. Such resources are a beneficial asset to the EET & CNS program's students.

Section 5: Conclusions

RELATIONSHIP TO FSU MISSION[1]

The EET & CNS department is very well positioned with respect to the Mission and Vision of Ferris State University, and in many respects is a leading example of the execution of both.

Emphasis on hands-on learning is a basic staple in the curriculum of the EET & CNS program. All laboratories are led by faculty members, which is not always the case in much of the electrical and electronics related university programs. The EET program is only one of two programs in the State of Michigan that is accredited by the Technology Accreditation Commission of the Accreditation Board for Engineering and Technology (TAC-ABET). This positions Ferris State University favorably for students seeking excellence in a career oriented program with wide recognition. The CNS program also enjoys a very unique hands-on technology oriented curriculum, which has no comparable equal in the State of Michigan.

Integration of both classroom study and practical applications supports the FSU vision of integrative and multidisciplinary skills in the EET & CNS programs' two important curriculum cornerstones:

- A mandatory summer internship that exposes students to real-world industrial experience. It also provides a means of interface between the EET & CNS department to contacts in industry and government.

- The "capstone" Senior Design course which begins with project engineering in a technology setting, and culminates with a group-oriented engineering project, that students manage and present at the end of the academic year.

The EET & CNS department has an active and supportive Industry Advisory Board that fosters not only curriculum direction in the program, but also opportunity for students. The program has nearly 100% placement of graduates, and industry seeks out the EET & CNS graduates, evident by the ten different industry representatives that have held presentations in the department for the 2007-2008 academic year in the "Meet with Industry" meetings.

PROGRAM VISIBILITY AND DISTINCTIVENESS[1]

The Electrical / Electronics Engineering Technology and Computer Networks and Systems program at Ferris State University have visibility and distinctiveness unique is this type of educational program in the State of Michigan.

- The Electrical / Electronics Engineering Technology Program is one of two such programs in the State of Michigan that is accredited by the Technology Accreditation Commission of the Accreditation Board for Engineering and Technology (TAC-ABET).

- The Computer Networks and Systems Program is unique in the State of Michigan.

- A nearly full placement rate for graduates in both EET & CNS programs is an attractive asset for future students, both transferees and direct high school graduates.

- An engaged advisory board from industry works both to the advantage of steering the program curriculum to satisfy current industry trends as well as garner future student employment, internships and donations to the department.

- The level of hands-on laboratory work available to both EET & CNS program's students enables skill development in areas that are highly in demand, such as homeland security, alternative energy and electronic controls.

PROGRAM VALUE[1]

The Electrical / Electronics Engineering Technology and Computer Networks and Systems program at Ferris State University holds a high degree of value with respect to the university, related industry and to its students. The importance of electronics and computer networks is unequivocally relevant to the goals of our State and Nation. The use of electronics and computer networks is fundamental and ubiquitous in all of the major problems facing our world today – such as homeland security, defense and means of alternative energy. No university technology program can be complete without such a program.

In addition to attracting student talent to the EET & CNS programs, whether directly from high school or as transferees from other FSU programs or outside the university, fully 30% of the EET & CNS faculty load is to support other university programs. The integration of electronics and computer systems is evident in these other programs and fit in to the overall EET & CNS program's value.

With nearly 100% graduate placement, the EET & CNS programs can be regarded as a valuable asset to associated industry that hires these types of graduates. The advisory board for these programs has a diverse and active set of members that helps to steer the program's curriculum and outcomes. The involvement and input from the advisory board is a clear indication of the value that the EET & CNS programs bring to industry. Many companies seek out and request meetings with the students of the programs long before the students are available for hire.

The students of the EET & CNS programs have indicated its value through the surveys that have been taken. The most relevant surveys would be in students that have already graduated, as well as graduating seniors. Highlights of these surveys show:

- 87.5% of graduating CNS students indicated that they "somewhat agreed or strongly agreed" that they received their money's worth in their education.
- 85% of EET students felt that they "somewhat agreed or strongly agreed" that ABET accreditation was valuable to them.
- 75% of EET and CNS students combined felt that they "somewhat agreed or strongly agreed" that the program is distinctive and holds great value.
- 80% of CNS graduates "somewhat agreed or strongly agreed" that they would recommend the CNS program to others.
- 78% of EET graduates "somewhat agreed or strongly agreed" that they would recommend the EET program to others.

ENROLLMENT[2]

The overall trend in enrollment has been a slight decrease and now a leveling in total enrollment. We continue to see this trend with the current entering class. An interesting note on enrollments is worthwhile here. It appears that the number of career opportunities for graduates is increasing even in tough economic time. However this is not translating into higher number of admitted students which has been the typical case in the past. The trend might be taking longer to develop in recent years.

Another interesting trend is toward a larger number of students being admitted but not enrolling in classes. In the 07-08 recruiting year, about 130 students were admitted into all programs in the department with about 40 enrolling in fall 08 courses to date. Many believe that with the application process on the web, students apply to more universities and ultimately choose one.

The capacities are set very high for the department that has 7.25 full time equated faculty. Based on the capacity of 192 students, this would represent a full year equated student to full time equated faculty of 26.5. The same ratio for the university as a whole is 15.4. Additionally, approximately 30% of the faculty teaching load is dedicated to servicing non majors who bring the ratio even higher. With the current student count at 162, the full year equated student to full time equated faculty is 22.3 not counting the service to non majors.

CHARACTERISTICS, QUALITY AND EMPLOYABILITY OF STUDENTS[1]

The characteristics, quality and employability of the Electrical / Electronics Engineering Technology and Computer Networks and Systems students can be summarized by the outcomes of the EET & CNS programs. A key indication of these measures lies directly with essentially 100% student placement by employers, and the fact that employers seek out students from this program.

On the front end, the employability of the students from the EET & CNS programs has also allowed the programs to raise academic standards. Coupled with accreditation on the EET side of the house by the Technology Accreditation Commission of the Accreditation Board for Engineering and Technology (TAC-ABET). The EET program at FSU is one of only two Electrical/Electronics Engineering Technology programs accredited in the state of Michigan. All of these factors contribute to enhancing the characteristics, quality and employability of EET & CNS students. In addition, the following areas employed by the EET & CNS programs are integral to the development of student quality and employability:

- Student Internship
- Senior Design Course
- Industry Advisory Board with Curriculum Input

Students from the EET & CNS programs have been employed from various industrial firms that span the gamut of sites across the United States to even Antarctica. The enhanced student experience is bolstered by the requirement of an internship before graduation. The internship is an integral part of the EET & CNS experience; allowing students gain valuable industry exposure, as well as enhance the employability of future graduates.

The Senior Design course is a full year, two part course that begins with project management and concludes with a group based engineering project and presentation. The importance of this course set is affirmed by feedback from students, employers and the EET & CNS Advisory Board.

COMPOSITION AND QUALITY OF THE FACULTY[1]

The composition and quality of the faculty in the Electrical / Electronics Engineering Technology and Computer Networks and Systems program can be summarized as “well experienced”, “connected with industry”, as well as “in tune with the needs of students”. Concern exists, however, in the ability of the program to fill and maintain faculty positions given the wide disparity between academic salaries and those of private industry. Some student feedback also raised concerns about how faculty members are evaluated on an ongoing basis.

The EET & CNS faculty have a combined teaching experience of over 100 years. Each faculty member brings important and diverse experiences into the instructional environment in several facets apart from classroom instruction:

- All faculty members have work experience in industry prior to teaching.
- Most faculty members have published work in research and industrial journals.
- The majority of EET & CNS faculty members have exercised development opportunities to further their respective expertise in specific technical areas in the recent past.
- All faculty members hold advanced degrees in their respective fields.

The impact of faculty experience & expertise must not be underestimated, given the wide ranging topics in the field of Electrical / Electronics Engineering Technology and Computer Networks and Systems:

- Digital Electronics & Programmable Logic
- Microprocessor Programming & Embedded Systems
- Semiconductor Electronics & Communications
- Power Engineering
- Industrial Controls & Robotics
- Computer Networks
- Wireless Systems
- Network Security

The EET & CNS faculty hold expertise in one or more of the aforementioned topics (for specific expertise, please refer to the Curriculum Vitae section in the appendix). This expertise has been shown to be important not only in instruction, but to also build bridges to private industry through the EET & CNS advisory committee, recruitment and ongoing development.

The high-tech nature of EET & CNS has substantial pressure in salaries outside of academia. Jared DeMott joined the department faculty in August 2007, and departed for higher wages in private industry at the conclusion of the academic year in May of 2008. Since that time, a suitable replacement has not been found.

It is evident that finding qualified personnel is exceedingly difficult given the wide disparity in salaries between private industry and as a member of the faculty.

Section Authors - References

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Appendices

Appendix 1 – Surveys

CURRENT STUDENT SURVEYS

Survey of EECN Students 2008 Spring

Survey & Detailed Analysis

Ferris State University

EET & CNS Department APR Survey of Current CNS, IET & EET Students

As part of our Academic Program Review (APR), we are asking current students in the CNS, IET and EET programs to please take a few minutes to complete this survey. Your responses will help plan the future and needs of the programs. Please read each question/item carefully and answer all of the questions candidly and to the best of your ability. Thank you for your assistance with this important process.

Q01 Please indicate your level of agreement with each of the following statements regarding academic advising.

Strongly Disagree, Somewhat Disagree, Neutral, Somewhat Agree, Strongly Agree

Q01.a I was "placed" in the appropriate courses in my program when I entered my program.
Q01.b The Dept. Chair is helpful & courteous when performing academic advising.
Q01.c The Dept. Chair knows & executes his/her advising role well.
Q01.d My academic advisor is helpful & courteous.
Q01.e My academic advisor knows & executes his/her advising role well.

Q02 Please indicate your level of agreement with each of the following statements regarding course delivery.

Strongly Disagree, Somewhat Disagree, Neutral, Somewhat Agree, Strongly Agree

Q02.a The curriculum provides knowledge & skills required by employers.
Q02.b Assignment objectives are made clear to students.
Q02.c Lectures are well prepared & organized.
Q02.d Use of media, white boards, overheads & video is appropriate & helpful.

Q03 Please indicate your level of agreement with each of the following statements regarding learning evaluation. .

Strongly Disagree, Somewhat Disagree, Neutral, Somewhat Agree, Strongly Agree

Q03.a Student expectations & grading are clearly explained.
Q03.b Testing & evaluation procedures are reasonable.
Q03.c Graded materials are returned within a reasonable time.

Q04 Please indicate your level of agreement with each of the following statements regarding course material. .

Strongly Disagree, Somewhat Disagree, Neutral, Somewhat Agree, Strongly Agree

Q04.a Material presented is current, not outdated.
Q04.b Difficulty of material for level of course is appropriate.
Q04.c Quality of material presented is high.
Q04.d Pace of material is appropriate.
Q04.e Material presented is relevant to the curriculum.

Q05 Please indicate your level of agreement with each of the following statements regarding laboratory equipment. . **Strongly Disagree, Somewhat Disagree, Neutral, Somewhat Agree, Strongly Agree**

Q05.a The laboratory equipment (excluding general computers) is sufficient & of good quality.
Q05.b The laboratory equipment (excluding general computers) is current with the industry.
Q05.c The laboratory equipment (excluding general computers) is generally well maintained.
Q05.d The laboratory equipment (excluding general computers) is available in sufficient quantity.
Q05.e The laboratory general computers are sufficient & of good quality.
Q05.f The laboratory equipment is accessible outside of scheduled course laboratory times (open laboratory, guest in other course's laboratories, etc.)
Q05.g The software needed for program courses is accessible outside of scheduled course laboratory times (on network, open laboratory, quest in other course's laboratories, etc.)

Q06 Please indicate your level of agreement with each of the following statements regarding laboratory availability. **Strongly Disagree, Somewhat Disagree, Neutral, Somewhat Agree, Strongly Agree**

Q06.a The lecture facilities are sufficient & of good quality.
Q06.b The laboratory facilities (excluding equipment) are sufficient & of good quality.
Q06.c Open laboratory hours are open sufficient amounts of time.
Q06.d Open laboratory hours are at convenient times.

Q07 Please indicate your level of agreement with each of the following statements regarding course resources. **Strongly Disagree, Somewhat Disagree, Neutral, Somewhat Agree, Strongly Agree**

Q07.a Reference materials are available & relevant.
Q07.b **Only answer if you attended SLA IET sessions :** SLA sessions in IET were very worthwhile & helpful.
Q07.c The program courses used text books of good technical quality.
Q07.d The program courses used text books of good readability.

Q08 Please indicate your level of agreement with each of the following statements regarding the department personnel. **Strongly Disagree, Somewhat Disagree, Neutral, Somewhat Agree, Strongly Agree**

Q08.a The department's chair knows & executes his/her job well.
Q08.b The department's chair is helpful & courteous.
Q08.c The department's secretary knows & executes his/her job well.
Q08.d The department's secretary is helpful & courteous.
Q08.e The department's technician knows & executes his/her job well.
Q08.f The department's technician is helpful & courteous.

Q09 Please indicate your level of agreement with each of the following statements regarding the program faculty. **Strongly Disagree, Somewhat Disagree, Neutral, Somewhat Agree, Strongly Agree**

Q09.a Instructors care about his/her students' learning.
Q09.b The department's instructors are effective in the classroom.
Q09.c The department's instructors are effective in the laboratory.
Q09.d The department's instructors are knowledgeable in his/her professed field of expertise.

Q10 Please indicate your level of agreement with each of the following statements regarding course offerings and objectives. **Strongly Disagree, Somewhat Disagree, Neutral, Somewhat Agree, Strongly Agree**

Q10.a Courses in your program area are available at convenient times.
Q10.b Courses in your program area are available at convenient locations.
Q10.c Published objectives for courses in the program accurately describe the courses as delivered.
Q10.d Published objectives for courses in the program are readily available to students.

Q11 Please indicate your level of agreement with each of the following statements regarding program courses. **Strongly Disagree, Somewhat Disagree, Neutral, Somewhat Agree, Strongly Agree**

Q11.a The program courses delivered by the EET & CNS Department are challenging.
Q11.b The program courses delivered by the EET & CNS Department are informative.
Q11.c The program courses covered topics of interest to me.
Q11.d The program courses have a good coordination between the lecture & laboratory.
Q11.e Courses are based on realistic prerequisites/corequisites.

Q12 What percentage of educational time in the EET & CNS classes should be spent in laboratory "hands on" experience?

____30% to 40%
____41% to 50%
____51% to 60%
____61% to 70%

Q13 Please indicate your level of agreement with each of the following statements regarding Math Department courses. **Strongly Disagree, Somewhat Disagree, Neutral, Somewhat Agree, Strongly Agree**

Q13.a The program courses delivered by the Math Dept. were challenging.
Q13.b The program courses delivered by the Math Dept. were informative.
Q13.c The program courses delivered by the Math Dept. were a good foundation for follow-up courses in my program.

Q14 Please indicate your level of agreement with each of the following statements regarding Physics Department courses. **Strongly Disagree, Somewhat Disagree, Neutral, Somewhat Agree, Strongly Agree**

Q14.a The program courses delivered by the Physics Dept. were challenging.
Q14.b The program courses delivered by the Physics Dept. were a good foundation for follow-up courses in my program.
Q14.c The program courses delivered by the Physics Dept. were informative.

Q15 Please indicate your level of agreement with each of the following statements regarding general education courses. **Strongly Disagree, Somewhat Disagree, Neutral, Somewhat Agree, Strongly Agree**

Q15.a The general education courses were challenging.
Q15.b The general education courses were informative.
Q15.c The general education courses were a good foundation for follow-up courses in my program.
Q15.d The general education courses are a good foundation for life.
Q15.e General education instruction is of high quality.

Q16 Please indicate your level of agreement with each of the following statements regarding technical elective courses. **Strongly Disagree, Somewhat Disagree, Neutral, Somewhat Agree, Strongly Agree**

Q16,1 The technical elective courses are available in areas of my interest.
Q16.b The technical elective courses were challenging.
Q16.c The technical elective courses were informative.
Q16.d The technical elective courses were a good foundation for follow-up courses in my program.
Q16.e The technical elective courses are relevant to my program.
Q16.f The technical elective instruction is of high quality.

Q17 Please indicate your level of agreement with each of the following statements regarding Student Employment & Career Services. **Strongly Disagree, Somewhat Disagree, Neutral, Somewhat Agree, Strongly Agree**

Q17.a The Student Employment & Career Services personnel are helpful & courteous.
Q17.b Services personnel know & execute their job well.
Q17.c The student professional organizations associated with my program benefited me.
Q17.d The student organizations NOT associated with my program benefited me.

Q18 How did you first learn about Ferris?

Q19 What caused you to decide to attend Ferris?

Q20 How did you first learn about the program you are currently in?

Q21 Please rank the following potential reasons you decided to enter the program you are currently in.

A 1 indicates your 1st reason, 2 means 2nd reason, etc.
Please only rank the ones that apply to you and leave the others blank.

Q21.a	Friend suggested program	1 2 3 4 5 6 7
Q21.b	Family suggested program	1 2 3 4 5 6 7
Q21.c	Teacher suggested program	1 2 3 4 5 6 7
Q21.d	School counselor	1 2 3 4 5 6 7
Q21.e	Program's reputation and quality	1 2 3 4 5 6 7
Q21.f	Advertising	1 2 3 4 5 6 7
Q21.g	Other	1 2 3 4 5 6 7

Q22 If you selected "Other" in Question 21, please specify.

Q23 What could Ferris do to better promote the EET & CNS programs? Please rank the following ideas, *ranking only the ones you think would be effective and leaving the others blank*.

A 1 indicates your 1st reason, 2 means 2nd reason, etc.
Please only rank the ones that apply to you and leave the others blank.

Q23.a	TV advertising	1 2 3 4 5 6 7
Q23.b	Radio advertising	1 2 3 4 5 6 7
Q23.c	Video sent to high schools	1 2 3 4 5 6 7
Q23.d	Web page on Internet	1 2 3 4 5 6 7
Q23.e	Visits from FSU Admissions Representative	1 2 3 4 5 6 7
Q23.f	Host field trips to FSU to see facilities & talk to faculty	1 2 3 4 5 6 7
Q23.g	Brochures & materials sent to school counselors	1 2 3 4 5 6 7
Q23.h	Other	1 2 3 4 5 6 7

Q24 If you selected "Other" in Question 23, please specify.

Q25 What is your class standing this semester?

Pre Freshman
Freshman
Sophomore
Junior
Senior
Post Senior

Q26 I would like to work on: ***(Please select only one.)***

A technical sales team
A design engineering team
An engineering support & applications team
A technician team
A management team
Other - Please Specify:

Q27 What program(s) were you accepted into when you entered Ferris? ***(Please select only one.)***

CNS
EET
IET
CNS & IET (CNS primary program)
CNS & EET (CNS primary program)
IET & CNS (IET primary program)
EET & CNS (EET primary program)
Other - Please Specify:

Q28 What program(s) are you *currently* accepted into? ***(Please select only one.)***

CNS
EET
IET
CNS & IET (CNS primary program)
CNS & EET (CNS primary program)
IET & CNS (IET primary program)
EET & CNS (EET primary program)

Q29 What semester of your program's (or primary program) check sheet did you enter? (Give your best estimate.)

Pre-Technical
First year
Second year
Third year
Fourth year

Q30 What semester of your program (or primary program) check sheet are you currently in? (Give your best estimate.)

Pre-Technical
First year
Second year
Third year
Fourth year

Q31 Did you plan to obtain a degree from Ferris when you entered Ferris?

Yes
No
Unsure

Q32 Do you currently plan to obtain a degree from Ferris?

Yes
No
Unsure

Q33 What are your intentions for post graduation education?

Not pursuing additional formal education after graduation
Bachelor in Engineering/Technology after getting AAS (IET)
Another Bachelor in Engineering/Technology/Computers
Bachelor in Business/Management
Master in Engineering/Technology after getting BS (BS-CNS or BS-EET)
Other - Please Specify:

Q34 Please use this space to provide additional comments. You have 2000 characters available.

----------Thank you for your time and feedback.

Detailed Analysis

Raw Statistics Prepared by: Institutional Research & Testing, 03/08/2008

Frequency Tables

q1a I was "placed" in the appropriate courses

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	4	4.7	4.7	4.7
	Somewhat Disagree	10	11.8	11.8	16.5
	Neutral	14	16.5	16.5	32.9
	Somewhat Agree	30	35.3	35.3	68.2
	Strongly Agree	27	31.8	31.8	100
	Total	85	100	100	

q1b Dept. Chair is helpful/courteous

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	3	3.5	3.5	3.5
	Somewhat Disagree	2	2.4	2.4	5.9
	Neutral	13	15.3	15.3	21.2
	Somewhat Agree	30	35.3	35.3	56.5
	Strongly Agree	37	43.5	43.5	100
	Total	85	100	100	

q1c Dept. Chair knows/executes advising role well

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	2	2.4	2.4	2.4
	Somewhat Disagree	3	3.5	3.6	6
	Neutral	15	17.6	17.9	23.8
	Somewhat Agree	32	37.6	38.1	61.9
	Strongly Agree	32	37.6	38.1	100
	Total	84	98.8	100	
Missing	System	1	1.2		

Total		*85*	*100*		

q1d Academic advisor is helpful/courteous

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	*3*	*3.5*	*3.5*	*3.5*
	Somewhat Disagree	*5*	*5.9*	*5.9*	*9.4*
	Neutral	*7*	*8.2*	*8.2*	*17.6*
	Somewhat Agree	*27*	*31.8*	*31.8*	*49.4*
	Strongly Agree	*43*	*50.6*	*50.6*	*100*
	Total	*85*	*100*	*100*	

q1e Academic advisor knows/executes advising role well

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	*3*	*3.5*	*3.6*	*3.6*
	Somewhat Disagree	*4*	*4.7*	*4.8*	*8.3*
	Neutral	*8*	*9.4*	*9.5*	*17.9*
	Somewhat Agree	*26*	*30.6*	*31*	*48.8*
	Strongly Agree	*43*	*50.6*	*51.2*	*100*
	Total	*84*	*98.8*	*100*	
Missing	System	*1*	*1.2*		
Total		*85*	*100*		

q2a Curriculum provides knowledge/skills required by employers

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	*2*	*2.4*	*2.4*	*2.4*
	Somewhat Disagree	*4*	*4.7*	*4.7*	*7.1*
	Neutral	*14*	*16.5*	*16.5*	*23.5*
	Somewhat Agree	*39*	*45.9*	*45.9*	*69.4*
	Strongly Agree	*26*	*30.6*	*30.6*	*100*
	Total	*85*	*100*	*100*	

q2b Assignment objectives are made clear to students

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	1.2	1.2	1.2
	Somewhat Disagree	3	3.5	3.5	4.7
	Neutral	16	18.8	18.8	23.5
	Somewhat Agree	40	47.1	47.1	70.6
	Strongly Agree	25	29.4	29.4	100
	Total	85	100	100	

q2c Lectures are well prepared & organized

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	2	2.4	2.4	2.4
	Somewhat Disagree	2	2.4	2.4	4.8
	Neutral	18	21.2	21.4	26.2
	Somewhat Agree	43	50.6	51.2	77.4
	Strongly Agree	19	22.4	22.6	100
	Total	84	98.8	100	
Missing	System	1	1.2		
Total		85	100		

q2d Use of media, white boards, etc. is appropriate/helpful

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	1.2	1.2	1.2
	Somewhat Disagree	2	2.4	2.4	3.5
	Neutral	10	11.8	11.8	15.3
	Somewhat Agree	41	48.2	48.2	63.5
	Strongly Agree	31	36.5	36.5	100
	Total	85	100	100	

q3a Student expectations/grading are clearly explained

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	2	2.4	2.4	2.4
	Somewhat Disagree	2	2.4	2.4	4.8
	Neutral	14	16.5	16.7	21.4
	Somewhat Agree	41	48.2	48.8	70.2
	Strongly Agree	25	29.4	29.8	100
	Total	84	98.8	100	
Missing	System	1	1.2		
Total		85	100		

q3b Testing/evaluation procedures are reasonable

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	2	2.4	2.4	2.4
	Somewhat Disagree	4	4.7	4.8	7.1
	Neutral	11	12.9	13.1	20.2
	Somewhat Agree	41	48.2	48.8	69
	Strongly Agree	26	30.6	31	100
	Total	84	98.8	100	
Missing	System	1	1.2		
Total		85	100		

q3c Graded materials are returned within reasonable time

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	1.2	1.2	1.2
	Somewhat Disagree	1	1.2	1.2	2.4
	Neutral	11	12.9	13.3	15.7
	Somewhat Agree	40	47.1	48.2	63.9
	Strongly Agree	30	35.3	36.1	100
	Total	83	97.6	100	
Missing	System	2	2.4		
Total		85	100		

q4a Material presented is current, not outdated

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	3	3.5	3.6	3.6
	Somewhat Disagree	8	9.4	9.6	13.3
	Neutral	14	16.5	16.9	30.1
	Somewhat Agree	39	45.9	47	77.1
	Strongly Agree	19	22.4	22.9	100
	Total	83	97.6	100	
Missing	System	2	2.4		
Total		85	100		

q4b Difficulty of material is appropriate

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	3	3.5	3.6	3.6
	Somewhat Disagree	4	4.7	4.8	8.4
	Neutral	9	10.6	10.8	19.3
	Somewhat Agree	46	54.1	55.4	74.7
	Strongly Agree	21	24.7	25.3	100
	Total	83	97.6	100	
Missing	System	2	2.4		
Total		85	100		

q4c Quality of material presented is high

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	1.2	1.2	1.2
	Somewhat Disagree	3	3.5	3.6	4.8
	Neutral	15	17.6	18.1	22.9
	Somewhat Agree	39	45.9	47	69.9
	Strongly Agree	25	29.4	30.1	100
	Total	83	97.6	100	
Missing	System	2	2.4		
Total		85	100		

q4d Pace of material is appropriate

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	1.2	1.2	1.2
	Somewhat Disagree	6	7.1	7.2	8.4
	Neutral	16	18.8	19.3	27.7
	Somewhat Agree	41	48.2	49.4	77.1
	Strongly Agree	19	22.4	22.9	100
	Total	83	97.6	100	
Missing	System	2	2.4		
Total		85	100		

q4e Material presented is relevant to the curriculum

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	2	2.4	2.4	2.4
	Somewhat Disagree	1	1.2	1.2	3.6
	Neutral	12	14.1	14.5	18.1
	Somewhat Agree	41	48.2	49.4	67.5
	Strongly Agree	27	31.8	32.5	100
	Total	83	97.6	100	
Missing	System	2	2.4		
Total		85	100		

q5a Laboratory equip (excluding general computers): Sufficient/good quality

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	3	3.5	3.5	3.5
	Somewhat Disagree	12	14.1	14.1	17.6
	Neutral	15	17.6	17.6	35.3
	Somewhat Agree	35	41.2	41.2	76.5
	Strongly Agree	20	23.5	23.5	100
	Total	85	100	100	

q5b Laboratory equip (excluding general computers): Current w/ industry

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	4	4.7	4.7	4.7
	Somewhat Disagree	12	14.1	14.1	18.8
	Neutral	18	21.2	21.2	40
	Somewhat Agree	36	42.4	42.4	82.4
	Strongly Agree	15	17.6	17.6	100
	Total	85	100	100	

q5c Laboratory equip (excluding general computers): Well maintained

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	2	2.4	2.4	2.4
	Somewhat Disagree	2	2.4	2.4	4.7
	Neutral	15	17.6	17.6	22.4
	Somewhat Agree	39	45.9	45.9	68.2
	Strongly Agree	27	31.8	31.8	100
	Total	85	100	100	

q5d Laboratory equip (excluding general computers): Sufficient quantity

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	4	4.7	4.8	4.8
	Somewhat Disagree	5	5.9	6	10.7
	Neutral	17	20	20.2	31
	Somewhat Agree	43	50.6	51.2	82.1
	Strongly Agree	15	17.6	17.9	100
	Total	84	98.8	100	
Missing	System	1	1.2		
Total		85	100		

q5e Laboratory general computers sufficient/good quality

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	7	8.2	8.2	8.2
	Somewhat Disagree	12	14.1	14.1	22.4
	Neutral	14	16.5	16.5	38.8
	Somewhat Agree	36	42.4	42.4	81.2
	Strongly Agree	16	18.8	18.8	100
	Total	85	100	100	

q5f Laboratory equipment accessible outside of scheduled laboratory times

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	2	2.4	2.4	2.4
	Somewhat Disagree	3	3.5	3.5	5.9
	Neutral	15	17.6	17.6	23.5
	Somewhat Agree	38	44.7	44.7	68.2
	Strongly Agree	27	31.8	31.8	100
	Total	85	100	100	

q5g Software accessible outside of scheduled laboratory times

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	3	3.5	3.5	3.5
	Somewhat Disagree	5	5.9	5.9	9.4
	Neutral	17	20	20	29.4
	Somewhat Agree	41	48.2	48.2	77.6
	Strongly Agree	19	22.4	22.4	100
	Total	85	100	100	

q6a Lecture facilities are sufficient/good quality

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	1.2	1.2	1.2
	Somewhat Disagree	3	3.5	3.6	4.8
	Neutral	11	12.9	13.1	17.9
	Somewhat Agree	46	54.1	54.8	72.6
	Strongly Agree	23	27.1	27.4	100
	Total	84	98.8	100	
Missing	System	1	1.2		
Total		85	100		

q6b Laboratories (excluding equipment) sufficient/good quality

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	1.2	1.2	1.2
	Somewhat Disagree	1	1.2	1.2	2.4
	Neutral	7	8.2	8.4	10.8
	Somewhat Agree	53	62.4	63.9	74.7
	Strongly Agree	21	24.7	25.3	100
	Total	83	97.6	100	
Missing	System	2	2.4		
Total		85	100		

q6c Open laboratory hours are open sufficient amounts of time

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	3	3.5	3.6	3.6
	Somewhat Disagree	7	8.2	8.3	11.9
	Neutral	10	11.8	11.9	23.8
	Somewhat Agree	45	52.9	53.6	77.4
	Strongly Agree	19	22.4	22.6	100
	Total	84	98.8	100	
Missing	System	1	1.2		
Total		85	100		

q6d Open laboratory hours are at convenient times

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	3	3.5	3.6	3.6
	Somewhat Disagree	8	9.4	9.6	13.3
	Neutral	15	17.6	18.1	31.3
	Somewhat Agree	37	43.5	44.6	75.9
	Strongly Agree	20	23.5	24.1	100
	Total	83	97.6	100	
Missing	System	2	2.4		
Total		85	100		

q7a Reference materials are available & relevant

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	2	2.4	2.5	2.5
	Somewhat Disagree	3	3.5	3.7	6.2
	Neutral	23	27.1	28.4	34.6
	Somewhat Agree	37	43.5	45.7	80.2
	Strongly Agree	16	18.8	19.8	100
	Total	81	95.3	100	
Missing	System	4	4.7		
Total		85	100		

q7b SLA laboratories in EET were very worthwhile/helpful

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	2	2.4	4.8	4.8
	Somewhat Disagree	1	1.2	2.4	7.1
	Neutral	14	16.5	33.3	40.5
	Somewhat Agree	11	12.9	26.2	66.7
	Strongly Agree	14	16.5	33.3	100
	Total	42	49.4	100	
Missing	System	43	50.6		
Total		85	100		

q7c Textbooks of good technical quality

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	4	4.7	5.6	5.6
	Somewhat Disagree	3	3.5	4.2	9.7
	Neutral	19	22.4	26.4	36.1
	Somewhat Agree	28	32.9	38.9	75
	Strongly Agree	18	21.2	25	100
	Total	72	84.7	100	
Missing	System	13	15.3		
Total		85	100		

q7d Textbooks of good readability

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	5	5.9	6.9	6.9
	Somewhat Disagree	13	15.3	18.1	25
	Neutral	18	21.2	25	50
	Somewhat Agree	23	27.1	31.9	81.9
	Strongly Agree	13	15.3	18.1	100
	Total	72	84.7	100	
Missing	System	13	15.3		
Total		85	100		

q8a Chair knows/executes job well

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	2	2.4	2.4	2.4
	Somewhat Disagree	3	3.5	3.6	6
	Neutral	14	16.5	16.7	22.6
	Somewhat Agree	36	42.4	42.9	65.5
	Strongly Agree	29	34.1	34.5	100
	Total	84	98.8	100	
Missing	System	1	1.2		
Total		85	100		

q8b Chair is helpful/courteous

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	2	2.4	2.4	2.4
	Somewhat Disagree	2	2.4	2.4	4.9
	Neutral	10	11.8	12.2	17.1
	Somewhat Agree	34	40	41.5	58.5
	Strongly Agree	34	40	41.5	100
	Total	82	96.5	100	
Missing	System	3	3.5		
Total		85	100		

q8c Secretary knows/executes job well

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	1.2	1.2	1.2
	Somewhat Disagree	3	3.5	3.6	4.8
	Neutral	14	16.5	16.7	21.4
	Somewhat Agree	31	36.5	36.9	58.3
	Strongly Agree	35	41.2	41.7	100
	Total	84	98.8	100	
Missing	System	1	1.2		
Total		85	100		

q8d Secretary is helpful/courteous

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	1.2	1.2	1.2
	Somewhat Disagree	2	2.4	2.4	3.6
	Neutral	11	12.9	13.1	16.7
	Somewhat Agree	28	32.9	33.3	50
	Strongly Agree	42	49.4	50	100
	Total	84	98.8	100	
Missing	System	1	1.2		
Total		85	100		

q8e Technician knows/executes job well

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	1.2	1.2	1.2
	Somewhat Disagree	1	1.2	1.2	2.4
	Neutral	11	12.9	13.3	15.7
	Somewhat Agree	20	23.5	24.1	39.8
	Strongly Agree	50	58.8	60.2	100
	Total	83	97.6	100	
Missing	System	2	2.4		
Total		85	100		

q8f Technician is helpful/courteous

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	1.2	1.2	1.2
	Somewhat Disagree	1	1.2	1.2	2.4
	Neutral	11	12.9	13.3	15.7
	Somewhat Agree	24	28.2	28.9	44.6
	Strongly Agree	46	54.1	55.4	100
	Total	83	97.6	100	
Missing	System	2	2.4		
Total		85	100		

q9a Instructors care about students' learning

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	4	4.7	4.8	4.8
	Somewhat Disagree	2	2.4	2.4	7.1
	Neutral	12	14.1	14.3	21.4
	Somewhat Agree	34	40	40.5	61.9
	Strongly Agree	32	37.6	38.1	100
	Total	84	98.8	100	
Missing	System	1	1.2		
Total		85	100		

q9b Instructors are effective in the classroom

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	3	3.5	3.6	3.6
	Somewhat Disagree	3	3.5	3.6	7.1
	Neutral	12	14.1	14.3	21.4
	Somewhat Agree	40	47.1	47.6	69
	Strongly Agree	26	30.6	31	100
	Total	84	98.8	100	
Missing	System	1	1.2		
Total		85	100		

q9c Instructors are effective in the laboratory

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	3	3.5	3.6	3.6
	Somewhat Disagree	3	3.5	3.6	7.1
	Neutral	11	12.9	13.1	20.2
	Somewhat Agree	35	41.2	41.7	61.9
	Strongly Agree	32	37.6	38.1	100
	Total	84	98.8	100	
Missing	System	1	1.2		
Total		85	100		

q9d Instructors are knowledgeable

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	2	2.4	2.4	2.4
	Neutral	9	10.6	10.7	13.1
	Somewhat Agree	33	38.8	39.3	52.4
	Strongly Agree	40	47.1	47.6	100
	Total	84	98.8	100	
Missing	System	1	1.2		
Total		85	100		

q10a Courses available at convenient times

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	8	9.4	9.8	9.8
	Somewhat Disagree	19	22.4	23.2	32.9
	Neutral	13	15.3	15.9	48.8
	Somewhat Agree	34	40	41.5	90.2
	Strongly Agree	8	9.4	9.8	100
	Total	82	96.5	100	
Missing	System	3	3.5		
Total		85	100		

q10b Courses available at convenient locations

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	1.2	1.2	1.2
	Somewhat Disagree	3	3.5	3.7	4.9
	Neutral	11	12.9	13.4	18.3
	Somewhat Agree	35	41.2	42.7	61
	Strongly Agree	32	37.6	39	100
	Total	82	96.5	100	
Missing	System	3	3.5		
Total		85	100		

q10c Published objectives accurately describe courses

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	1.2	1.2	1.2
	Somewhat Disagree	6	7.1	7.4	8.6
	Neutral	15	17.6	18.5	27.2
	Somewhat Agree	41	48.2	50.6	77.8
	Strongly Agree	18	21.2	22.2	100
	Total	81	95.3	100	
Missing	System	4	4.7		
Total		85	100		

q10d Published objectives readily available to students

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	2	2.4	2.5	2.5
	Somewhat Disagree	2	2.4	2.5	4.9
	Neutral	13	15.3	16	21
	Somewhat Agree	43	50.6	53.1	74.1
	Strongly Agree	21	24.7	25.9	100
	Total	81	95.3	100	
Missing	System	4	4.7		
Total		85	100		

q11a EET & CNS Dept courses are challenging

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	1.2	1.2	1.2
	Somewhat Disagree	4	4.7	4.8	6
	Neutral	7	8.2	8.3	14.3
	Somewhat Agree	42	49.4	50	64.3
	Strongly Agree	30	35.3	35.7	100
	Total	84	98.8	100	
Missing	System	1	1.2		
Total		85	100		

q11b EET & CNS Dept courses are informative

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	1.2	1.2	1.2
	Neutral	9	10.6	10.7	11.9
	Somewhat Agree	47	55.3	56	67.9
	Strongly Agree	27	31.8	32.1	100
	Total	84	98.8	100	
Missing	System	1	1.2		
Total		85	100		

q11c Courses covered topics of interest to me

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	1.2	1.2	1.2
	Somewhat Disagree	4	4.7	4.8	6
	Neutral	14	16.5	16.7	22.6
	Somewhat Agree	39	45.9	46.4	69
	Strongly Agree	26	30.6	31	100
	Total	84	98.8	100	
Missing	System	1	1.2		
Total		85	100		

q11d Courses have good coordination between lecture & laboratory

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	1.2	1.2	1.2
	Somewhat Disagree	3	3.5	3.6	4.8
	Neutral	12	14.1	14.3	19
	Somewhat Agree	37	43.5	44	63.1
	Strongly Agree	31	36.5	36.9	100
	Total	84	98.8	100	
Missing	System	1	1.2		
Total		85	100		

q11e Courses based on realistic prerequisites / corequisites

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	6	7.1	7.1	7.1
	Somewhat Disagree	1	1.2	1.2	8.3
	Neutral	13	15.3	15.5	23.8
	Somewhat Agree	38	44.7	45.2	69
	Strongly Agree	26	30.6	31	100
	Total	84	98.8	100	
Missing	System	1	1.2		
Total		85	100		

q12 Percentage of EET/CNS classes spent in laboratory "hands on"

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	30% to 40%	8	9.4	9.6	9.6
	41% to 50%	17	20	20.5	30.1
	51% to 60%	24	28.2	28.9	59
	61% to 70%	34	40	41	100
	Total	83	97.6	100	
Missing	System	2	2.4		
Total		85	100		

q13a Math Dept. program courses were challenging

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Disagree	4	4.7	4.8	4.8
	Neutral	20	23.5	24.1	28.9
	Somewhat Agree	33	38.8	39.8	68.7
	Strongly Agree	26	30.6	31.3	100
	Total	83	97.6	100	
Missing	System	2	2.4		
Total		85	100		

q13b Math Dept. program courses were informative

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	4	4.7	4.8	4.8
	Somewhat Disagree	3	3.5	3.6	8.4
	Neutral	21	24.7	25.3	33.7
	Somewhat Agree	39	45.9	47	80.7
	Strongly Agree	16	18.8	19.3	100
	Total	83	97.6	100	
Missing	System	2	2.4		
Total		85	100		

q13c Math Dept. program courses good foundation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	5	5.9	6	6
	Somewhat Disagree	7	8.2	8.4	14.5
	Neutral	25	29.4	30.1	44.6
	Somewhat Agree	31	36.5	37.3	81.9
	Strongly Agree	15	17.6	18.1	100
	Total	83	97.6	100	
Missing	System	2	2.4		
Total		85	100		

q14a Physics Dept. program courses were challenging

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	2	2.4	2.5	2.5
	Somewhat Disagree	2	2.4	2.5	5
	Neutral	30	35.3	37.5	42.5
	Somewhat Agree	23	27.1	28.8	71.3
	Strongly Agree	23	27.1	28.8	100
	Total	80	94.1	100	
Missing	System	5	5.9		
Total		85	100		

q14b Physics Dept. program courses were informative

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	5	5.9	6.3	6.3
	Somewhat Disagree	8	9.4	10	16.3
	Neutral	32	37.6	40	56.3
	Somewhat Agree	23	27.1	28.8	85
	Strongly Agree	12	14.1	15	100
	Total	80	94.1	100	
Missing	System	5	5.9		
Total		85	100		

q14c Physics Dept. program courses good foundation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	9	10.6	11.3	11.3
	Somewhat Disagree	9	10.6	11.3	22.5
	Neutral	36	42.4	45	67.5
	Somewhat Agree	18	21.2	22.5	90
	Strongly Agree	8	9.4	10	100
	Total	80	94.1	100	
Missing	System	5	5.9		
Total		85	100		

q15a General education courses were challenging

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	5	5.9	6	6
	Somewhat Disagree	9	10.6	10.8	16.9
	Neutral	35	41.2	42.2	59
	Somewhat Agree	27	31.8	32.5	91.6
	Strongly Agree	7	8.2	8.4	100
	Total	83	97.6	100	
Missing	System	2	2.4		
Total		85	100		

q15b General education courses were informative

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	5	5.9	6	6
	Somewhat Disagree	6	7.1	7.2	13.3
	Neutral	30	35.3	36.1	49.4
	Somewhat Agree	30	35.3	36.1	85.5
	Strongly Agree	12	14.1	14.5	100
	Total	83	97.6	100	
Missing	System	2	2.4		
Total		85	100		

q15c General education courses good foundation for follow-up courses

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	9	10.6	10.8	10.8
	Somewhat Disagree	17	20	20.5	31.3
	Neutral	32	37.6	38.6	69.9
	Somewhat Agree	19	22.4	22.9	92.8
	Strongly Agree	6	7.1	7.2	100
	Total	83	97.6	100	
Missing	System	2	2.4		
Total		85	100		

q15d General education courses are a good foundation for life

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	11	12.9	13.3	13.3
	Somewhat Disagree	11	12.9	13.3	26.5
	Neutral	27	31.8	32.5	59
	Somewhat Agree	24	28.2	28.9	88
	Strongly Agree	10	11.8	12	100
	Total	83	97.6	100	
Missing	System	2	2.4		
Total		85	100		

q15e General education instruction is of high quality

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	4	4.7	4.8	4.8
	Somewhat Disagree	14	16.5	16.9	21.7
	Neutral	27	31.8	32.5	54.2
	Somewhat Agree	27	31.8	32.5	86.7
	Strongly Agree	11	12.9	13.3	100
	Total	83	97.6	100	
Missing	System	2	2.4		
Total		85	100		

q16a Technical elective courses are available in areas of my interest

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	3	3.5	3.7	3.7
	Somewhat Disagree	6	7.1	7.4	11.1
	Neutral	24	28.2	29.6	40.7
	Somewhat Agree	32	37.6	39.5	80.2
	Strongly Agree	16	18.8	19.8	100
	Total	81	95.3	100	
Missing	System	4	4.7		
Total		85	100		

q16b Technical elective courses were challenging

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	2	2.4	2.5	2.5
	Somewhat Disagree	3	3.5	3.7	6.2
	Neutral	29	34.1	35.8	42
	Somewhat Agree	29	34.1	35.8	77.8
	Strongly Agree	18	21.2	22.2	100
	Total	81	95.3	100	
Missing	System	4	4.7		
Total		85	100		

q16c Technical elective courses were informative

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	2	2.4	2.5	2.5
	Somewhat Disagree	2	2.4	2.5	4.9
	Neutral	30	35.3	37	42
	Somewhat Agree	26	30.6	32.1	74.1
	Strongly Agree	21	24.7	25.9	100
	Total	81	95.3	100	
Missing	System	4	4.7		
Total		85	100		

q16d Technical elective courses good foundation for follow-up

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	4	4.7	4.9	4.9
	Somewhat Disagree	4	4.7	4.9	9.9
	Neutral	33	38.8	40.7	50.6
	Somewhat Agree	24	28.2	29.6	80.2
	Strongly Agree	16	18.8	19.8	100
	Total	81	95.3	100	
Missing	System	4	4.7		
Total		85	100		

q16e Technical elective courses are relevant to my program

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	2	2.4	2.5	2.5
	Somewhat Disagree	5	5.9	6.3	8.8
	Neutral	33	38.8	41.3	50
	Somewhat Agree	24	28.2	30	80
	Strongly Agree	16	18.8	20	100
	Total	80	94.1	100	
Missing	System	5	5.9		
Total		85	100		

q16f Technical elective instruction is of high quality

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	1.2	1.2	1.2
	Somewhat Disagree	2	2.4	2.5	3.7
	Neutral	37	43.5	45.7	49.4
	Somewhat Agree	21	24.7	25.9	75.3
	Strongly Agree	20	23.5	24.7	100
	Total	81	95.3	100	
Missing	System	4	4.7		
Total		85	100		

q17a Student Employ / Career Services personnel helpful/courteous

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	3	3.5	3.8	3.8
	Somewhat Disagree	9	10.6	11.4	15.2
	Neutral	40	47.1	50.6	65.8
	Somewhat Agree	18	21.2	22.8	88.6
	Strongly Agree	9	10.6	11.4	100
	Total	79	92.9	100	
Missing	System	6	7.1		
Total		85	100		

q17b Student Employ/Career Services personnel know/execute job well

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	3	3.5	3.8	3.8
	Somewhat Disagree	9	10.6	11.4	15.2
	Neutral	44	51.8	55.7	70.9
	Somewhat Agree	16	18.8	20.3	91.1
	Strongly Agree	7	8.2	8.9	100
	Total	79	92.9	100	
Missing	System	6	7.1		
Total		85	100		

q17c Student professional organizations associated w/ program benefited me

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	4	4.7	5	5
	Somewhat Disagree	8	9.4	10	15
	Neutral	45	52.9	56.3	71.3
	Somewhat Agree	14	16.5	17.5	88.8
	Strongly Agree	9	10.6	11.3	100
	Total	80	94.1	100	
Missing	System	5	5.9		
Total		85	100		

q17d Student organizations NOT associated w/ program benefited me

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	5	5.9	6.3	6.3
	Somewhat Disagree	4	4.7	5.1	11.4
	Neutral	51	60	64.6	75.9
	Somewhat Agree	11	12.9	13.9	89.9
	Strongly Agree	8	9.4	10.1	100
	Total	79	92.9	100	
Missing	System	6	7.1		
Total		85	100		

q21a Rank reason: Friend suggested program

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	9	10.6	19.1	19.1
	2	6	7.1	12.8	31.9
	3	11	12.9	23.4	55.3
	4	5	5.9	10.6	66
	5	4	4.7	8.5	74.5
	6	4	4.7	8.5	83
	7	8	9.4	17	100
	Total	47	55.3	100	
Missing	System	38	44.7		
Total		85	100		

q21b Rank reason: Family suggested program

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	7	8.2	14.6	14.6
	2	12	14.1	25	39.6
	3	8	9.4	16.7	56.3
	4	8	9.4	16.7	72.9
	5	3	3.5	6.3	79.2
	6	3	3.5	6.3	85.4
	7	7	8.2	14.6	100
	Total	48	56.5	100	
Missing	System	37	43.5		
Total		85	100		

q21c Rank reason: Teacher suggested program

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	7	8.2	14.3	14.3
	2	7	8.2	14.3	28.6
	3	11	12.9	22.4	51
	4	8	9.4	16.3	67.3
	5	7	8.2	14.3	81.6
	6	2	2.4	4.1	85.7
	7	7	8.2	14.3	100
	Total	49	57.6	100	
Missing	System	36	42.4		
Total		85	100		

q21d Rank reason: School counselor

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	5	5.9	10.2	10.2
	2	8	9.4	16.3	26.5
	3	4	4.7	8.2	34.7
	4	9	10.6	18.4	53.1
	5	7	8.2	14.3	67.3
	6	7	8.2	14.3	81.6
	7	9	10.6	18.4	100
	Total	49	57.6	100	
Missing	System	36	42.4		
Total		85	100		

q21e Rank reason: Programs reputation/quality

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	13	15.3	22.4	22.4
	2	20	23.5	34.5	56.9
	3	6	7.1	10.3	67.2
	4	3	3.5	5.2	72.4
	5	6	7.1	10.3	82.8
	6	4	4.7	6.9	89.7
	7	6	7.1	10.3	100
	Total	58	68.2	100	
Missing	System	27	31.8		
Total		85	100		

q21f Rank reason: Advertising

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	8	9.4	14.8	14.8
	2	1	1.2	1.9	16.7
	3	5	5.9	9.3	25.9
	4	5	5.9	9.3	35.2
	5	5	5.9	9.3	44.4
	6	15	17.6	27.8	72.2
	7	15	17.6	27.8	100
	Total	54	63.5	100	
Missing	System	31	36.5		
Total		85	100		

q21g Rank reason: Other

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	27	31.8	44.3	44.3
	2	7	8.2	11.5	55.7
	3	2	2.4	3.3	59
	4	2	2.4	3.3	62.3
	5	1	1.2	1.6	63.9
	6	3	3.5	4.9	68.9
	7	19	22.4	31.1	100
	Total	61	71.8	100	
Missing	System	24	28.2		
Total		85	100		

q23a Rank idea: TV advertising

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	19	22.4	38.8	38.8
	2	6	7.1	12.2	51
	3	7	8.2	14.3	65.3
	4	4	4.7	8.2	73.5
	5	1	1.2	2	75.5
	6	6	7.1	12.2	87.8
	7	6	7.1	12.2	100
	Total	49	57.6	100	
Missing	System	36	42.4		
Total		85	100		

q23b Rank idea: Radio advertising

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	5	5.9	11.6	11.6
	2	6	7.1	14	25.6
	3	6	7.1	14	39.5
	4	6	7.1	14	53.5
	5	5	5.9	11.6	65.1
	6	8	9.4	18.6	83.7
	7	7	8.2	16.3	100
	Total	43	50.6	100	
Missing	System	42	49.4		
Total		85	100		

q23c Rank idea: Video sent to High School

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	5	5.9	10	10
	2	12	14.1	24	34
	3	12	14.1	24	58
	4	3	3.5	6	64
	5	10	11.8	20	84
	6	5	5.9	10	94
	7	3	3.5	6	100
	Total	50	58.8	100	
Missing	System	35	41.2		
Total		85	100		

q23d Rank idea: Web page on Internet

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	22	25.9	40	40
	2	5	5.9	9.1	49.1
	3	5	5.9	9.1	58.2
	4	14	16.5	25.5	83.6
	5	4	4.7	7.3	90.9
	6	2	2.4	3.6	94.5
	7	3	3.5	5.5	100
	Total	55	64.7	100	
Missing	System	30	35.3		
Total		85	100		

q23e Rank idea: Visits from FSU Admissions Representative

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	12	14.1	24.5	24.5
	2	11	12.9	22.4	46.9
	3	10	11.8	20.4	67.3
	4	4	4.7	8.2	75.5
	5	6	7.1	12.2	87.8
	6	1	1.2	2	89.8
	7	5	5.9	10.2	100
	Total	49	57.6	100	
Missing	System	36	42.4		
Total		85	100		

q23f Rank idea: Host field trips to FSU to see facilities / talk to faculty

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	16	18.8	25.8	25.8
	2	14	16.5	22.6	48.4
	3	10	11.8	16.1	64.5
	4	6	7.1	9.7	74.2
	5	3	3.5	4.8	79
	6	10	11.8	16.1	95.2
	7	3	3.5	4.8	100
	Total	62	72.9	100	
Missing	System	23	27.1		
Total		85	100		

q23g Rank idea: Brochures / materials sent to school counselors

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	12	14.1	20.7	20.7
	2	11	12.9	19	39.7
	3	7	8.2	12.1	51.7
	4	8	9.4	13.8	65.5
	5	4	4.7	6.9	72.4
	6	3	3.5	5.2	77.6
	7	13	15.3	22.4	100
	Total	58	68.2	100	
Missing	System	27	31.8		
Total		85	100		

q23h Rank idea: Other

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	6	7.1	28.6	28.6
	3	1	1.2	4.8	33.3
	4	3	3.5	14.3	47.6
	5	2	2.4	9.5	57.1
	6	1	1.2	4.8	61.9
	7	8	9.4	38.1	100
	Total	21	24.7	100	
Missing	System	64	75.3		
Total		85	100		

q25 Class standing this semester

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Pre Freshman	1	1.2	1.2	1.2
	Freshman	10	11.8	12.2	13.4
	Sophomore	12	14.1	14.6	28
	Junior	25	29.4	30.5	58.5
	Senior	29	34.1	35.4	93.9
	Post Senior	5	5.9	6.1	100
	Total	82	96.5	100	
Missing	System	3	3.5		
Total		85	100		

q26 I would like to work on

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	A technical sales team	3	3.5	3.8	3.8
	A design engineering team	23	27.1	28.8	32.5
	An engineering support & applications team	16	18.8	20	52.5
	A technician team	26	30.6	32.5	85
	A management team	5	5.9	6.3	91.3
	Other	7	8.2	8.8	100
	Total	80	94.1	100	
Missing	System	5	5.9		
Total		85	100		

q27 Program(s) accepted into when you entered

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	CNS	*34*	*40*	*41.5*	*41.5*
	EET	*17*	*20*	*20.7*	*62.2*
	IET	*15*	*17.6*	*18.3*	*80.5*
	CNS & IET (CNS primary program)	*3*	*3.5*	*3.7*	*84.1*
	CNS & EET (CNS primary program)	*6*	*7.1*	*7.3*	*91.5*
	IET & CNS (IET primary program)	*1*	*1.2*	*1.2*	*92.7*
	EET & CNS (EET primary program)	*3*	*3.5*	*3.7*	*96.3*
	Other	*3*	*3.5*	*3.7*	*100*
	Total	*82*	*96.5*	*100*	
Missing	System	*3*	*3.5*		
Total		*85*	*100*		

q28 Program(s) currently accepted into

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	CNS	*37*	*43.5*	*45.7*	*45.7*
	EET	*26*	*30.6*	*32.1*	*77.8*
	IET	*11*	*12.9*	*13.6*	*91.4*
	CNS & IET (CNS primary program)	*1*	*1.2*	*1.2*	*92.6*
	CNS & EET (CNS primary program)	*5*	*5.9*	*6.2*	*98.8*
	EET & CNS (EET primary program)	*1*	*1.2*	*1.2*	*100*
	Total	*81*	*95.3*	*100*	
Missing	System	*4*	*4.7*		
Total		*85*	*100*		

q29 Semester of your program check sheet entered

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Pre-Technical	4	4.7	4.9	4.9
	First year	47	55.3	57.3	62.2
	Second year	14	16.5	17.1	79.3
	Third year	8	9.4	9.8	89
	Fourth year	9	10.6	11	100
	Total	82	96.5	100	
Missing	System	3	3.5		
Total		85	100		

q30 Semester of your program check sheet currently in

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Pre-Technical	1	1.2	1.2	1.2
	First year	17	20	20.7	22
	Second year	17	20	20.7	42.7
	Third year	22	25.9	26.8	69.5
	Fourth year	25	29.4	30.5	100
	Total	82	96.5	100	
Missing	System	3	3.5		
Total		85	100		

q31 Plan to obtain degree when entered FSU

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	80	94.1	97.6	97.6
	No	2	2.4	2.4	100
	Total	82	96.5	100	
Missing	System	3	3.5		
Total		85	100		

q32 Currently plan to obtain a degree from Ferris

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	77	90.6	93.9	93.9
	No	5	5.9	6.1	100
	Total	82	96.5	100	
Missing	System	3	3.5		
Total		85	100		

q33 Intentions for post graduation education

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not pursuing additional formal education after graduation	*27*	*31.8*	*32.9*	*32.9*
	Bachelor's in Engineering/Technology after getting AAS (IET)	*18*	*21.2*	*22*	*54.9*
	Another Bachelor's in Engineering/Technology/Computers	*5*	*5.9*	*6.1*	*61*
	Master's in Engineering/Technology after getting BS	*20*	*23.5*	*24.4*	*85.4*
	Other	*12*	*14.1*	*14.6*	*100*
	Total	*82*	*96.5*	*100*	
Missing	System	*3*	*3.5*		
Total		*85*	*100*		

End of Multiple Choice and Similar Questions.

Beginning of Textual Answers.

q18 First learn about Ferris

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		16	18.8	18.8	18.8
	8th grade field trip	1	1.2	1.2	20
	A fellow student	1	1.2	1.2	21.2
	A friend of mine was attending Ferris & she suggested that I come here	1	1.2	1.2	22.4
	A friend was in the CNS program a few years back	1	1.2	1.2	23.5
	Alumni	1	1.2	1.2	24.7
	Billboards	1	1.2	1.2	25.9
	Both of my parents attended Ferris for 4 years	1	1.2	1.2	27.1
	Both parents graduated from Ferris	1	1.2	1.2	28.2
	Community college	2	2.4	2.4	30.6
	Family	1	1.2	1.2	31.8
	Ferris lied to me	1	1.2	1.2	32.9
	Friend(s)	10	11.8	11.8	44.7
	Friends (alumni), online, GRCC	1	1.2	1.2	45.9
	Girlfriend was enrolled for Biotech. I came to stay together.	1	1.2	1.2	47.1
	GRCC	2	2.4	2.4	49.4
	High school	3	3.5	3.5	52.9
	High school teachers	1	1.2	1.2	54.1
	Hockey camp in the summers	1	1.2	1.2	55.3
	I'm local	7	8.2	8.2	63.5
	I grew up in Grand Rapids so it was mentioned quite often.	1	1.2	1.2	64.7
	I moved to Grand Rapids & was going to go to Michigan Tech, but I looked at FSU right before I left	1	1.2	1.2	65.9
	In high school when Ferris was putting on a science program for a week during the summer.	1	1.2	1.2	67.1
	Internet	3	3.5	3.5	70.6
	My cousin went here.	1	1.2	1.2	71.8
	My dad went to Ferris	1	1.2	1.2	72.9
	My girlfriend	1	1.2	1.2	74.1
	My high school counselor suggested it to me my senior year.	1	1.2	1.2	75.3
	Parents	1	1.2	1.2	76.5
	Parents moved to this area and I saw that Ferris was close.	1	1.2	1.2	77.6
	Pharmacy school	1	1.2	1.2	78.8
	Plastics tour in high school	1	1.2	1.2	80
	Researched for program	1	1.2	1.2	81.2

	Salesman/Technicians at my previous job	1	1.2	1.2	82.4
	Sister went here	1	1.2	1.2	83.5
	Someone visited my high school	1	1.2	1.2	84.7
	Teachers at my Community College	1	1.2	1.2	85.9
	Through Ferris alumni	1	1.2	1.2	87.1
	Through Ferris website and friends.	1	1.2	1.2	88.2
	Through lies & deceit	1	1.2	1.2	89.4
	Through searching online for universities offering classes in Networking. As well as a presentation in my Cisco Network Academy class.	1	1.2	1.2	90.6
	Took a tour in high school	1	1.2	1.2	91.8
	Uncle	2	2.4	2.4	94.1
	Very remote & not a lot to do but drink on the weekends. Needs more events related to technology	1	1.2	1.2	95.3
	Word of mouth	4	4.7	4.7	100
	Total	85	100	100	

q19 Caused you to decide to attend Ferris

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		16	18.8	18.8	18.8
	8th grade field trip	1	1.2	1.2	20
	Advanced placement	1	1.2	1.2	21.2
	Because I didn't want to go to Grand Valley	1	1.2	1.2	22.4
	Both my husband & I are attending. It was convenient that they offer both of our programs of interest.	1	1.2	1.2	23.5
	Close to cabin. Good hands-on work.	1	1.2	1.2	24.7
	Close to home and Ferris has excellent technical training.	1	1.2	1.2	25.9
	Close to home and heard it had a good electrical program.	1	1.2	1.2	27.1
	Degree offerings of CNS. The broad range between electronics and network engineering.	1	1.2	1.2	28.2
	EET program had good reputation	1	1.2	1.2	29.4
	Ferris lied to me	1	1.2	1.2	30.6
	Friends and program	1	1.2	1.2	31.8
	Girlfriend was enrolled for Biotech. I came to stay together.	1	1.2	1.2	32.9
	Good major that covered a wide range of topics instead of "just" networking	1	1.2	1.2	34.1
	I'm not sure why anymore	1	1.2	1.2	35.3
	I have no idea	1	1.2	1.2	36.5
	Internet	1	1.2	1.2	37.6
	It's close to home	3	3.5	3.5	41.2
	It sounded fun from the courses required and reading the course catalog.	1	1.2	1.2	42.4
	It was relatively close to home & the most cost effective	1	1.2	1.2	43.5
	It was the only school that I really looked at.	1	1.2	1.2	44.7
	ITT Tech is a joke, easy of commute, reasonable cost of attendance. Offered a degree that perked my interests	1	1.2	1.2	45.9
	Liked the program that was available at a convenient location	1	1.2	1.2	47.1
	Location	5	5.9	5.9	52.9
	Location and program	1	1.2	1.2	54.1
	Location and the program contents.	1	1.2	1.2	55.3
	Location, small classes, CNS program.	1	1.2	1.2	56.5
	More credits transferred from ITT than any other university	1	1.2	1.2	57.6
	Most transfer credits	2	2.4	2.4	60
	My friend was still coming here and I kind of had to go to school so this wasn't a real bad option.	1	1.2	1.2	61.2
	My past experience coming to Ferris for a science program. I knew what the campus was like already and it seemed like an overall better school. Class sizes really helped too, because I feel that a smaller class will allow for a better learning experience. My final decision came from hearing that the college had one of the best computer programs in the state and once finished job placement was around 100%.	1	1.2	1.2	62.4
	Offered the program	1	1.2	1.2	63.5
	Originally in different program	1	1.2	1.2	64.7
	Program had the best fit for my career	1	1.2	1.2	65.9

	Program interested me	*1*	*1.2*	*1.2*	*67.1*
	Quality classes at affordable prices	*1*	*1.2*	*1.2*	*68.2*
	Reputation for technical arts.	*1*	*1.2*	*1.2*	*69.4*
	Teachers, and somewhat close to home, small class sizes.	*1*	*1.2*	*1.2*	*70.6*
	The classes looked similar, and cheaper closer distance	*1*	*1.2*	*1.2*	*71.8*
	The CNS program	*6*	*7.1*	*7.1*	*78.8*
	The CNS program was the only one of its kind around.	*1*	*1.2*	*1.2*	*80*
	The courses offered were right for my career path.	*1*	*1.2*	*1.2*	*81.2*
	The EEET program	*1*	*1.2*	*1.2*	*82.4*
	The family housing.	*1*	*1.2*	*1.2*	*83.5*
	The hands-on experience of learning.	*1*	*1.2*	*1.2*	*84.7*
	The move from my parents.	*1*	*1.2*	*1.2*	*85.9*
	The program I wanted & found interesting is available at FSU	*1*	*1.2*	*1.2*	*87.1*
	The reputation of the EEET program nationally is what set my mind on Ferris.	*1*	*1.2*	*1.2*	*88.2*
	The technology program	*1*	*1.2*	*1.2*	*89.4*
	The type of degree offered, close to home, and cost compared to other universities.	*1*	*1.2*	*1.2*	*90.6*
	They accepted me	*1*	*1.2*	*1.2*	*91.8*
	They had the degrees I wanted.	*1*	*1.2*	*1.2*	*92.9*
	They offer good program for my major	*1*	*1.2*	*1.2*	*94.1*
	Too many out of work bums in my family that tried to go without any extra school	*1*	*1.2*	*1.2*	*95.3*
	Tour through the CNS program by Ron McKean	*1*	*1.2*	*1.2*	*96.5*
	U-REC	*1*	*1.2*	*1.2*	*97.6*
	What I saw when I came to FSU on a tour and talking to the department chair.	*1*	*1.2*	*1.2*	*98.8*
	What was the credit price at the time.	*1*	*1.2*	*1.2*	*100*
	Total	*85*	*100*	*100*	

q20 First learn about program currently in

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		20	23.5	23.5	23.5
	A friend was in the CNS program a few years back	1	1.2	1.2	24.7
	A high school instructor	1	1.2	1.2	25.9
	By accident	1	1.2	1.2	27.1
	CAD/Drafting teacher in high school	1	1.2	1.2	28.2
	Came to check it out for myself after hearing about it.	1	1.2	1.2	29.4
	Can't remember	1	1.2	1.2	30.6
	Catalog	2	2.4	2.4	32.9
	Community College	1	1.2	1.2	34.1
	Education counseling	1	1.2	1.2	35.3
	Electricity	1	1.2	1.2	36.5
	Family of engineers	1	1.2	1.2	37.6
	Ferris lied to me	1	1.2	1.2	38.8
	Ferris website and tour.	1	1.2	1.2	40
	Friend was in it.	1	1.2	1.2	41.2
	From a friend who is studying the same thing in another country	1	1.2	1.2	42.4
	From a teacher in my high school.	1	1.2	1.2	43.5
	GRCC	3	3.5	3.5	47.1
	High school	1	1.2	1.2	48.2
	I contacted Ferris, and inquired about the EEET program	1	1.2	1.2	49.4
	I don't remember where I heard it from.	1	1.2	1.2	50.6
	I took electronics in high school and figured it wasn't too hard and was very mildly interesting so I continued. I still don't have any real idea as to what I would "like" to do for a career. I think a lot of that could or should be addressed more in high school so that you have a better idea as to what you can do and what you would want to do for the rest of your life. Otherwise you end up like me, I don't even like electronics but I never realized it until two years in or so and I don't have the money to just change majors and go to school for another 3 years or whatever it would have been.	1	1.2	1.2	51.8
	I was in Malaysia studying under different university.	1	1.2	1.2	52.9
	In high school when determining what profession to follow. I wanted something to do with computers and electronics. Through the grape vine I heard that Ferris had one of the best programs in the state for computers.	1	1.2	1.2	54.1
	In my first semester at Ferris	1	1.2	1.2	55.3
	Internet	9	10.6	10.6	65.9
	It is going to be a challenge	1	1.2	1.2	67.1
	Looked in the catalog for electrical engineering because that's what I wanted to do.	1	1.2	1.2	68.2
	Looked up the schools and the tech degrees they had	1	1.2	1.2	69.4
	Magic	1	1.2	1.2	70.6
	My dad	1	1.2	1.2	71.8
	On the website	7	8.2	8.2	80

	Pamphlets	*1*	*1.2*	*1.2*	*81.2*
	Previous Electricity/Electronics Teacher	*1*	*1.2*	*1.2*	*82.4*
	Research on my own.	*1*	*1.2*	*1.2*	*83.5*
	Salesman/Technicians at my previous job told me about it.	*1*	*1.2*	*1.2*	*84.7*
	Saw the course guide	*1*	*1.2*	*1.2*	*85.9*
	Self research into the program.	*1*	*1.2*	*1.2*	*87.1*
	Someone visited my high school	*1*	*1.2*	*1.2*	*88.2*
	Sounded fun	*1*	*1.2*	*1.2*	*89.4*
	Talked to department head	*1*	*1.2*	*1.2*	*90.6*
	Talked to my advisor.	*1*	*1.2*	*1.2*	*91.8*
	Teachers at community college	*1*	*1.2*	*1.2*	*92.9*
	Through my community college in Port Huron.	*1*	*1.2*	*1.2*	*94.1*
	Through my dad who was looking to enter in the same program when he quit his prior job.	*1*	*1.2*	*1.2*	*95.3*
	Through orientation.	*1*	*1.2*	*1.2*	*96.5*
	Through searching online for universities offering classes in Networking. As well as a presentation in my Cisco Network Academy class.	*1*	*1.2*	*1.2*	*97.6*
	Was interested in for a while before attending college	*1*	*1.2*	*1.2*	*98.8*
	When visiting	*1*	*1.2*	*1.2*	*100*
	Total	*85*	*100*	*100*	

q22 Other reason specified

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		49	57.6	57.6	57.6
	At first it was something that seems interesting to me & I just tried it out, now I enjoy the program.	1	1.2	1.2	58.8
	Better job opportunity to support the family	1	1.2	1.2	60
	Bored	1	1.2	1.2	61.2
	Close and affordable	1	1.2	1.2	62.4
	Department head	1	1.2	1.2	63.5
	Didn't mean to click on the other row	1	1.2	1.2	64.7
	Enjoying the work that comes with computers and networks.	1	1.2	1.2	65.9
	Hockey team was ranked well, and I like to watch hockey	1	1.2	1.2	67.1
	I came to a Career Service session & I heard good things about the program	1	1.2	1.2	68.2
	I found it online.	1	1.2	1.2	69.4
	I had a friend, that his cousin was an instructor in the heavy equipment program and he orchestrated the visit and tour of the school for me. He held Ferris very high(compared to other schools) and answered my questions with honesty.	1	1.2	1.2	70.6
	I had some previous electronics courses in high school and just went with it. I explained more in question 20.	1	1.2	1.2	71.8
	I had the desire to do electrical engineering & find out that adding electronic knowledge to it was important.	1	1.2	1.2	72.9
	I looked online & read about it & then decided to come after I called to talk to the dean.	1	1.2	1.2	74.1
	I started in CNS & hated it so EET took a lot of the same classes	1	1.2	1.2	75.3
	I thought that the program would have been more computer specific in terms of learning the individual parts and how they work to function as a machine.	1	1.2	1.2	76.5
	I wanted to do it.	1	1.2	1.2	77.6
	I was interested in learning more about electronics after career center.	1	1.2	1.2	78.8
	I was really interested in EEET program	1	1.2	1.2	80
	Internet	3	3.5	3.5	83.5
	Investigation of the program contents.	1	1.2	1.2	84.7
	It's for my own personal experience, but after I started my program, I like it and it's interesting.	1	1.2	1.2	85.9
	It was the program that I was most interested in.	1	1.2	1.2	87.1
	It was what I wanted to do.	1	1.2	1.2	88.2
	Just had an idea of what I wanted to get involved with.	1	1.2	1.2	89.4
	Know other students who attend the university.	1	1.2	1.2	90.6
	Mistakenly clicked	1	1.2	1.2	91.8
	Most transfer credits	1	1.2	1.2	92.9
	My own choice	1	1.2	1.2	94.1
	My own interest	1	1.2	1.2	95.3
	My own research.	1	1.2	1.2	96.5
	Self choice.	1	1.2	1.2	97.6
	They accepted me	1	1.2	1.2	98.8
	Was interested in during high school	1	1.2	1.2	100
	Total	85	100	100	

q24 Other idea specified

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		78	91.8	91.8	91.8
	By hosting and or competing in a collegiate competition such as a robotics competition.	1	1.2	1.2	92.9
	Compete in national & international competitions.	1	1.2	1.2	94.1
	Internet	1	1.2	1.2	95.3
	Make the programs better. We are the Computer Networking and Electronics Technology programs and we have the oldest and worst stuff, yet the business and hospitality management programs have all the nicest and best stuff. Does that make sense? More funding for the EET/CNS departments is sorely needed.	1	1.2	1.2	96.5
	Send stuff to high schools or bring them here & show them what we do (i.e., programming things to do stuff with both software & hardware)	1	1.2	1.2	97.6
	Student representatives to high schools	1	1.2	1.2	98.8
	Try to get a broader reach to the students, instead of advertising just in big cities, I never saw a billboard around my area advertising Ferris.	1	1.2	1.2	100
	Total	85	100	100	

q26a Work on Other specified

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		77	90.6	90.6	90.6
	Build and design custom machines and troubleshoot if they break	1	1.2	1.2	91.8
	Electrical Engineer I	1	1.2	1.2	92.9
	Embedded systems engineer	1	1.2	1.2	94.1
	Field applications.	1	1.2	1.2	95.3
	Matrix Technologies Industrial Systems Division (currently employed)	1	1.2	1.2	96.5
	Owning my own R/D and Prototyping business	1	1.2	1.2	97.6
	Research & development	1	1.2	1.2	98.8
	Software Vulnerability checking.	1	1.2	1.2	100
	Total	85	100	100	

q27a Other program specified

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		82	96.5	96.5	96.5
	CNS	1	1.2	1.2	97.6
	Computer Science	1	1.2	1.2	98.8
	Pre-Pharm	1	1.2	1.2	100
	Total	85	100	100	

q33a Other education specified

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		73	85.9	85.9	85.9
	Bachelors in Information Security	1	1.2	1.2	87.1
	Homeland Security	1	1.2	1.2	88.2
	Master's EE, Network Engineering	1	1.2	1.2	89.4
	Master's in an as of yet unknown field.	1	1.2	1.2	90.6
	Master's in Business Administration	1	1.2	1.2	91.8
	Master's in Engineering	2	2.4	2.4	94.1
	Master's in Engineering or another Bachelor's degree in different field of Engineering	1	1.2	1.2	95.3
	Master's in Engineering/Technology	1	1.2	1.2	96.5
	Might obtain Master's	1	1.2	1.2	97.6
	Not sure	1	1.2	1.2	98.8
	Possibly MBA after obtaining a bachelor s degree.	1	1.2	1.2	100
	Total	85	100	100	

q34 Additional comments

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		61	71.8	71.8	71.8
	CNS rocks	1	1.2	1.2	72.9
	COP is the absolute most worthless degrading piece of literature ever to grace my eyes.	1	1.2	1.2	74.1
	Forcing surveys is wrong!	1	1.2	1.2	75.3
	Get more competent professors like Prof. Most	1	1.2	1.2	76.5
	Had a really great time the last four years and am really going to miss, but never forget all the profs and friends I met.	1	1.2	1.2	77.6
	I hate surveys.	1	1.2	1.2	78.8
	I have been relatively unsatisfied with a couple of my courses this semester. It may be due to the fact that there have been many days of classes cancelled due to weather, but one of my courses (which will remain unspecified) has only met 3 times so far. This is a pretty in depth course that is only held one day a week. It is pretty much a waste of the money I'm spending in it at this point. I will be very unhappy if it lowers my GPA or if I fail.	1	1.2	1.2	80
	I think the CNS program should have more computer based courses, instead of all the electrical courses currently offered. I believe that a few courses in server administration and other courses like that would be very beneficial to the CNS program as a whole, and would better prepare us for our careers ahead.	1	1.2	1.2	81.2
	I would like to see more on software development. Currently out first programming class is ISYS 204: Intro to VB, that class is a waste of time and money. The class is run by just coping text from a book into a compiler. There is no learning how to design an algorithm or even write code from said algorithm. The first time this actually occurs in the C++ class offered by our department (ECNS 310-311). I would also like to see more on software vulnerability checking or even a class on secure programming practices.	1	1.2	1.2	82.4
	In my opinion, over the last two years, the CNS, EET, and IET department has improved. The only other improvement that I could see would be to somehow remove the Physics 1 requirement and only require Physics 2.	1	1.2	1.2	83.5
	More computer specific information. It's Computer Network & SYSTEMS. I was to understand that I would learn how to network, which I am/did, and also the systems of the computer, which I am not.	1	1.2	1.2	84.7
	N/A	1	1.2	1.2	85.9
	Please get rid of WebCT and non-tradition lectures.	1	1.2	1.2	87.1
	Should be an option to change advisors. The advisor I had was not helpful and had an attitude problem.	1	1.2	1.2	88.2
	Some instructors are excellent (i.e., Most, Merhenger Others are wasting my time, and their breath- Klope, Cook	1	1.2	1.2	89.4

	The classes overall are set up fairly well in my honest opinion. However, I believe that a better understanding of the material would happen if some of the staff would teach more thoroughly. Some professors just click through slides without really explaining the material. It's understood that they can't cover everything, but sometimes making the connection from the material to lecture isn't made, which makes learning difficult. The programming classes are also in definite need of improvement in the way they are taught. EEET-222 is taught very well, however the ECNS-311 class was difficult due to the lack of explaining code structure and various other techniques that are needed in programming. If there is a lack of interest from students about material, it's because most of the professors for CNS and EET tend to teach towards the students that understand the material already, rather than the ones who are trying to understand it better.	*1*	*1.2*	*1.2*	*90.6*
	The EET/CNS dept. head need to encourage more students to enroll.	*1*	*1.2*	*1.2*	*91.8*
	The IET/EET program needs to be more open to providing general classes at the remote campuses. There are very few accepted credits from the remote campuses that can be applied to the IET/EET prog. This makes it difficult for working adults wanting to obtain a degree in this field as a first time student or returning student.	*1*	*1.2*	*1.2*	*92.9*
	The negative feedback regarding my advisor refers to my initial adviser Prof. Leiu not my current advisor.	*1*	*1.2*	*1.2*	*94.1*
	The Physics classes are highly irrelevant. In PHYS212, the class spends 8 weeks on electrical and magnetic principles, but is on the checksheet well after we've had several classes on the subject. Classes rely too much on WebCT/FerrisConnect. This is especially a problem when tests are given through WebCT. Many times your answers are correct, but marked incorrect because of the way the answer was entered (eg. 34.5 is wrong, 3.45E1 is correct).	*1*	*1.2*	*1.2*	*95.3*
	The textbook for the Electric Circuits 1 & 2 is not a very helpful book, I recommend trying to find a book with more examples on how to do the problems. Also if it is possible maybe to have the instructors to hand out problems that have the solutions on them so the students can fully learn how to do the problems. That's how I learn better but if not then it is just fine.	*1*	*1.2*	*1.2*	*96.5*
	This is a poorly put together webpage. I don't even have to log in to MyFSU to fill it out or anything. I expect more from the College of **Technology**.	*1*	*1.2*	*1.2*	*97.6*
	Too much time is spent on EEET programs. I took more EEET classes than EEET students have. I think it's ridiculous and I might consider dropping the program. I have no desire to be an electrical engineer. So tell COT to stop trying to make me one.	*1*	*1.2*	*1.2*	*98.8*
	Your survey is pointless for me, regardless of what you plan to do with the results of this survey it won't take effect soon enough to affect my education.	*1*	*1.2*	*1.2*	*100*
	Total	*85*	*100*	*100*	

End of Textual Answers.

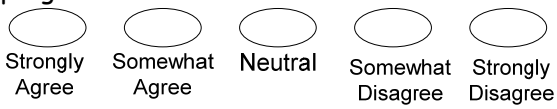
GRADUATING STUDENT EXIT SURVEY

EET & CNS Graduating Survey Questionnaire

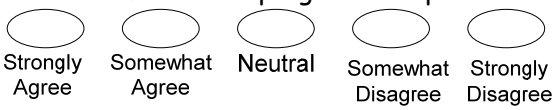
The EET & CNS department is undergoing a complete program evaluation. This special survey is intended for graduating seniors. Please help us understand our strengths and weaknesses so that we can honestly evaluate the program. Thank you.

Perceptions of Program Distinctiveness / Visibility / Value

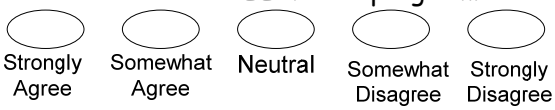
1. I feel that the EET/CNS program is distinctive and holds great value with respect to other similar programs that I considered.



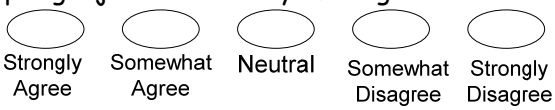
2. I feel that accreditation of the EET program is important to me.



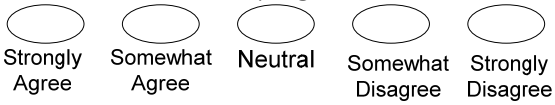
3. Employers seek out students in the EET/CNS program.



4. I have interviewed for a position / job and I have either accepted or I am anticipating accepting a job immediately after graduation.



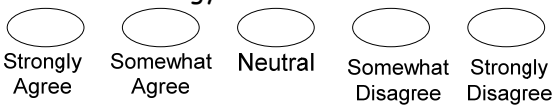
5. I am satisfied with the EET & CNS programs overall.



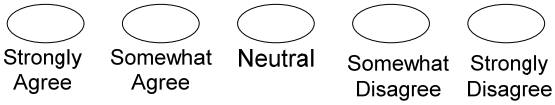
Further comments with respect to the EET/CNS program:

Perceptions of the Faculty & Curriculum

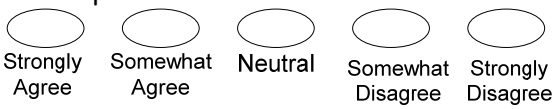
6. I feel the faculty understands the needs of industry and has made accommodations in the program for the technology in the EET/CNS curriculum.



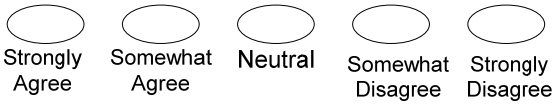
7. The EET/CNS program offers adequate specializations / concentrations in the areas that I was interested in.



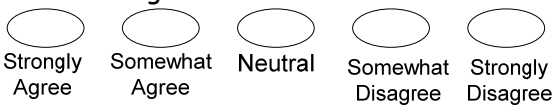
8. I was able to take the specialization classes that I was interested in.



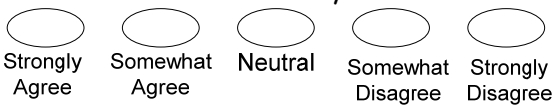
9. I feel the EET & CNS faculty have the technical and teaching skills necessary to be effective professors.



10. The EET & CNS faculty have challenged and inspired me to fulfill my goals while obtaining my EET or CNS degree.



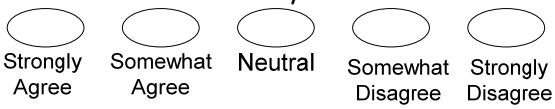
11. I am satisfied with the EET & CNS faculty.



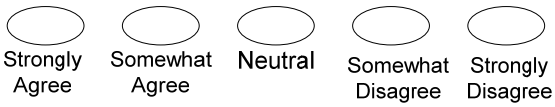
Further comments with respect to the EET/CNS faculty:

EET & CNS Facilities

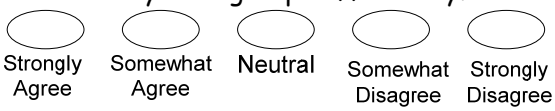
12. The EET & CNS lab facilities provided adequate equipment for effective hands-on training to complement classroom theory.



13. The EET & CNS classrooms were effective for lecture and presentation by the faculty.



14. The EET & CNS lab facilities had enough equipment and sections so that students could either work individually or in groups effectively.



Further comments with respect to the EET/CNS facilities:

General and overall perceptions

15. I feel that I got my money's worth in obtaining my EET or CNS degree.

Strongly Agree	Somewhat Agree	Neutral	Somewhat Disagree	Strongly Disagree
◯	◯	◯	◯	◯

16. I feel a strong connection to the students and faculty in the EET & CNS department.

Strongly Agree	Somewhat Agree	Neutral	Somewhat Disagree	Strongly Disagree
◯	◯	◯	◯	◯

17. If I had to do it over again, I would choose the EET/CNS program at FSU - knowing what I know now about all aspects of the program.

Strongly Agree	Somewhat Agree	Neutral	Somewhat Disagree	Strongly Disagree
◯	◯	◯	◯	◯

18. If there is one thing I could change about the EET & CNS curriculum, it would be:

19. If there is one thing I could change about the EET & CNS faculty, it would be:

20. If there is one thing I could change about the EET & CNS facilities, it would be:

21. If there is any one thing that I could change about my education journey at the EET & CNS programs, it would be:

Please use the space below to make any other comments that a program evaluation committee would find useful:

Graduating Student Exit Survey Results

EET	5	4	3	2	1	Total	Average Response
1	4	10	4	2	0	20	3.80
2	11	6	2	1	0	20	4.35
3	5	10	3	2	0	20	3.90
4	9	5	2	3	1	20	3.90
5	4	7	5	2	2	20	3.45
6	3	12	4	1	0	20	3.85
7	3	12	2	2	1	20	3.70
8	4	9	3	3	1	20	3.60
9	3	10	4	3	0	20	3.65
10	4	7	5	3	1	20	3.50
11	2	10	4	3	1	20	3.45
12	5	10	1	4	0	20	3.80
13	10	10	0	0	0	20	4.50
14	7	9	3	1	0	20	4.10
15	2	8	2	6	2	20	3.10
16	3	8	5	3	1	20	3.45
17	4	4	5	5	2	20	3.15

CNS	5	4	3	2	1	Total	Average Response
1	2	5	1	0	0	8	4.13
2	1	3	3	0	1	8	3.38
3	2	2	3	1	0	8	3.63
4	2	1	3	2	0	8	3.38
5	1	7	0	0	0	8	4.13
6	5	2	1	0	0	8	4.50
7	2	5	1	0	0	8	4.13
8	5	1	2	0	0	8	4.38
9	5	2	1	0	0	8	4.50
10	4	3	1	0	0	8	4.38
11	5	2	1	0	0	8	4.50
12	1	6	1	0	0	8	4.00
13	3	5	0	0	0	8	4.38
14	3	5	0	0	0	8	4.38
15	3	4	1	0	0	8	4.25
16	3	1	3	1	0	8	3.75
17	3	3	2	0	0	8	4.13

Graduating Student Exit Survey Comments

Graduating Student Survey Comments 2008

Further comments with respect to the EET/CNS program:

_____EET_____

The overall program was very well rounded, I learned many things, some classes really set back the program, or felt like a waste of time.

Classes didn't always consistently teach material. More than once was I the guinea pig for an experimental class set up. It degrades motivation. Some were attempted to be taught as independent type course but were given to sophomores. Those should be saved for juniors and seniors.

There should be a reduction in the number of social awareness courses and think about adding courses like hydraulics, process control and instrumentation.

Overall a good program.

Not enough hands on getting a robotic degree and only using a PETRA was very disappointing. Need 6 axis robots or something. Wouldn't recommend this program to many people.

Need better funding, feel like EET is almost a little behind the times in terms of overall education and lab equipment. Also, senior projects, although great for PR for the program, felt like a forced display to show how good the department is; but if your project isn't great, the students look bad. No one wants to be forced to do this much work, possibly fail, all to determine if you graduate.

Get more than Allen Bradley PLCs. Possibly some experience with robotics would be nice.

I was unclear about the difference between EEET and EE before I came to school. I wish I would have known before. Anyway to clear that up?

The program is presented as if it is a full engineering degree; and if I had known then, I would have chosen a different school.

Great program for hands-on lab work.

With the exception of a few, most of the professors ought to be fired (DeMott, Todd). What's the f***ing point of going to class to listen to the textbook presented on

PowerPoint? You all should check out their classes sometime. And what's up with not being able to take some classes in particular semesters? I shoulda been outta here a long time ago.

Some classes seemed to be a waste of time.

CNS

I feel that this program, both EET and CNS, should push more on programming and embedded systems development. This program is especially good at preparing us for the "real world" and I believe it is our personal interaction with our professors that helps us best.

I would like to see more programming classes and a Linux course in the CNS program. I didn't really see the point of the PC Data and Acquisition class.

There are certain aspects of the CNS program that should be reviewed, such as the PC Data and Acquisition class. It provides little to no benefit in its current form. Also, it would be nice if a larger array of networking technologies could be covered.

Once into the 300 or 400+ classes, teaching turns more into theory than hands on. I do not think it should.

It would be nice to see more employers for CNS at the job fair.

Further comments with respect the EET/CNS faculty:

EET

I feel that some of the faculty, while knowledgeable in their respective works and industries, are ineffective or downright bad teachers.

It seems like some professors have a great ability to teach and it seems like some professors have very little ability to teach and connect with students.

I believe some teachers don't grade the work turned in, but the person's name at the top of the paper.

I very much enjoyed the classes I had here, but it's very obvious as to which professors prepare their own lectures / labs and how much dedication they put into their classes.

Need more dedicated professors that care if students are getting the most of the courses (i.e., Professor Mehringer and Professor Most). Need to have advanced communications.

Some faculty members need to leave politics at home.

Mr. Most needs to give away a 100% lab report sometimes. It's impossible.

Courses are listed and are very rarely offered. It's frustrating if you are not in the majority of the class (i.e., automation concentration).

Professor Klope was the only person who inspired me around here.

Professor Klope may be a smart man, but he has a hard time conveying his knowledge to his classes (aka his teaching skills are sub-par). He overcomplicates everything. All other professors I enjoyed.

Professor Klope doesn't help you learn. He bores you to death in class and is too in love with Ferris Connect.

I didn't like the class I took with Mr. Klope. It seemed like he didn't enjoy teaching.

Some teachers are very smart, others are just horrible. There needs to be a better evaluation system. Not to just put a teacher out there, but Klope is one of the worst teachers I have had.

Having advisors was very helpful over the last two years.

Most professors have at least one area of expertise, which is nice.

I was somewhat let down when taking classes taught by Dr. Liew.

Professor Most has done an excellent job of teaching and motivating me to meet the goals of the EET/CNS program.

I feel that there are some weak points in the faculty. I have taken courses and not learned much at all and passed with a B or higher. I also think the C++ course needs to be taught differently.

Most of the professors and assistant professors here know their stuff quite well. In particular, Professor Jewett deserves a huge amount of the credit for helping students and challenging them to do better all the time, both academically and ethically.

Further comments with respect the EET/CNS facilities:

EET

Why the hell did we get the ELVIS boards?

Update some of the equipment in the lab and make sure that the instructors know how to set up and operate the equipment.

Some of the equipment seems a little outdated sometimes. Could upgrade in some areas.

There needs to be some major updated equipment within the automation control system classes. All the equipment is outdated or doesn't always give accurate results.

Some labs require me to be in a group of three. I think this made it difficult to learn. Some of the equipment is a little outdated.

Some of the equipment is old. It's hard to learn if we can't use what's actually going to be out in the field. Use more real life situations / applications (like Mr. Most).

Get new Motorola HC11 boards.

This is a need to add new equipment for the EEET-424 course.

I thought overall ok, except with robots.

A lot of the automation equipment is very outdated and when you go to an interview and tell them what you have been using, they laugh.

Full of equipment.

Funding.

CNS

For the networking classes the rooms were kind of cramped. I felt like there was a sufficient amount of hardware to work with, however.

In the fall of 2007 they got new computers for the labs which greatly helped out, instead of honestly waiting 5-8 minutes for it to load.

Newer equipment is needed for the CNS lab especially! We need more of the 2800 / 3800 series routers and appropriate modules for them. VOIP should be an important addition in the near future as almost every employer is looking for experience with it.

The networking lab could use some updating VOIP, wireless, newer computers.

It would be nice if the CNS lab equipment included new technologies like multi-layer switching, MPLS, VOIP, and the advanced security topics like IDS, IPS and NAC.

I greatly appreciated they are open whenever needed.

If there is one thing I could change about the EET & CNS <u>curriculum</u>, it would be:

_____EET_____

Not having seniors take 3 different classes which have projects due the last semester so they barely have any time to look for a job.

It has been updated since I began, which is good. Probably senior projects, it is almost a lawsuit in anguish and humiliation.

Change PC Data Acquisition name to an intro to Labview, never use Web-CT again.

Change advisors of the program. I felt that some of them looked down upon the EET degree compared to EE.

I wish we would get better advisors that don't look down on the EET degree vs. an EE degree. Also, I would like to see more advisors from automation companies and not as much from aerospace.

Better hands on.

Availability of every EEET/CNS class. Every semester would be nice.

Offer an engineering degree.

Not as much programming for EEET, and internship not required.

Move it out of Big Rapids.

More focus on EET related topics rather than cultural / social awareness classes.

Introduce more specialty courses earlier.

Make sure the classes that are required for the students to take are going to be available for all students required to take them.

More on what is going on in industry instead of what we get to do in lab.

Oh, I don't know…. How about actually offering the classes you advertise in your brochure so I don't have to f***ing take classes I'll fail.

Add Calculus #3 and Diff Eq.

More programming classes.

Change the CNS major around to have more computer administration courses involved.

A lot of employers are looking for specific server experience, specifically Windows server 2003. It would have been good to take a class that deals with different server technologies.

More real world server experiences would be preferable.

A few more computer science classes for those that are interested in that route. The CIS classes are a waste of time.

Remove Physics 212, it's all repeatable. Get rid of LabView and make PC Data useful. Try and speed up the whole Cisco Academy, it doesn't require 4 semesters.

More projects, especially self-developed ones, also more current equipment oriented assignments.

If there is one thing I could change about the EET & CNS faculty, it would be:

EET

Have some of them be more laid back and fun; not so anal (this is only true for one or two individuals).

Klope, Todd

Have the teachers actually know what they are teaching.

Hire more Prof's like Most and Mehringer.

No Klope!

Warren Klope should not teach Network Analysis.

Better evaluation of Klope.

Re-evaluate some of the professors.

Get rid of the use of PowerPoints created by an author of a book which is required for the class. It is a bit redundant.

Staff rotation in the industrial automation courses.

A little more required homework to make the students learn better (not in all classes).

To pursue the interest of the students learning by having the advisors take interest in the right courses to attain and be done in 4 years.

Evaluation of their overall teaching styles and relaying of information. Some make class more confused than reading the textbook.

The faculty should understand that most of the time their class isn't the only one they are taking and that all students aren't from EET or CNS.

Some of the faculty needs to be more connected with the students.

CNS

Fire DeMott, PowerPoint is not lecturing!

Faculty is great in the post-Liew era.

The huge disappointment of Dr. Liew.

I would remove one professor in particular.

Add more to remove the load off of the best ones. More faculty with interesting specialization.

Some EET professors need to realize the importance of coding and electronics together. The industry is moving more toward this.

If there is one thing I could change about the EET & CNS facilities, it would be:

EET

Update equipment that says "Ferris State College" on it.

More funding.

Update.

Newer equipment, EEET needs more labs.

Upgrade to better equipment. We are in the electronics department and we use some of the oldest s*** in the building.

Better than the PETRAs.

Better equipment and more space.

I would have the doors on the bathroom open out.

Have a dedicated working space for senior projects. Working in 4 different rooms that are locked up causes a lot of down time.

Update the equipment for the automation lab.

Newer equipment.

Upgrade the equipment; provide students with software to allow work outside of labs.

More updated equipment that pertains to the class work.

The facilities are good, there is equipment that we use and there is enough of it to go around.

CNS

Better computers. In labs 408 received new computers but the rest could still use some.

Larger space to work for the networking labs.

A couch for the conference room.

More CNS equipment for labs. Especially VOIP / 2800 series routers with POE modules.

If there is one thing I could change about <u>my</u> education journey at the EET & CNS programs, it would be:

EET

To get started right away with the program curriculum.

Taking things more seriously as a freshman and sophomore.

More specialties to go into.

Lower tuition.

Sometimes it was very hard for scheduling classes with the limited sections, which was understandable, because I was a transfer student.

I would have taken the CNS program too.

Not paying for internship.
Learn more things that would help me in industry.

Not to go here, but too much money spent already.

Learn about the program a little earlier and get involved.

Make it a full engineering degree.

Have the student advisors care about student's classes. My advisor missed 2 classes I had to take and is causing me to stay an extra semester.

CNS

I would have tried to obtain more professional level certifications.

Take more programming / database classes and don't take homeland security classes.

I would have taken Calc-2 earlier.

Taking something other than the HSCJ courses for my minor as they were a waste of time.

Please use the space below to make any other comments that a program review committee would find useful:

EET

All in all, Ferris is a good school to go to. Some of the teachers seem to be interested in that the students succeeded.

I don't understand why I have to pay Ferris for an internship. Also, it should be offered all three semesters.

Re-evaluate Klope.

The big problem I had, being a transfer student, I am not sure if this is something Ferris needs to change, or if it is Grand Rapids Community College. But when I transferred here, from GRCC with my associates degree, I still had to take a few 1st and 2nd year classes. And GRCC tells students that everything transfers to Ferris.

CNS

I love the CNS / EET faculty and the curriculum. I feel that future generations will benefit greatly from their experiences here. As long as the curriculum continues to evolve with the industry, it will remain strong.

Offer more high level programming language classes.

Incorporate the EET Communications class into the CNS program. Students in CNS have a huge advantage in the early digital classes if they take DC and AC early.

GRADUATE SURVEYS

Computer Networks and Systems Survey

Dear CNS Graduate: This survey is being done for purposes of program evaluation and continuous improvement. The survey also allows us to track how you are progressing in your career. As a graduate, you are in the unique position of providing feedback on our program. Your input is very important to us in determining areas of strengths as well as weaknesses. Since the CNS program is continuously improving, we are including a link to our course check sheet for your information:
http://catalog.ferris.edu/programsheets/Technology/compnetworkssys_b.pdf

We are very proud of you and your achievements. Please take the time to tell us about them.

Personal Status:	Degree (s) / Year / School
Name Home Address: Home Phone: _____ email: _____	_____ / / _____ / / _____ / / _____ / /

Career Status:						
Current Employment Company Name: _____ Company Address: Work Phone: _____ Work Fax: _____ Work email: _____						Your Title: _____ FSU Degree, Year Graduated from FSU: _____
Please answer these questions based on your experience from the FSU - CNS program. Your thoughtful answers will help us to evaluate and improve our program quality. **As a CNS graduate:**	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	
1. I perform well overall compared to graduates from other universities:						

2. I am able to use written and oral skills effectively:					
3. I have developed good critical thinking, problem solving, and decision making skills.					
4. I have a strong technical understanding:					
5. I have the ability to apply technical theory to practical situations.					
6. I have adequate mathematical skills.					
7. I am self-motivated and enthusiastic.					
8. I am ready and able to assume responsibility.					
9. I am able to plan effective use of available resources.					
10. I am able to participate as part of a team.					
11. I work well with individuals from diverse backgrounds.					
12. I have good ethical values.					
13. The courses provided a good mix of subjects for my career options.					
14. Courses challenged me intellectually.					
15. Courses motivated me to a higher level of performance.					
16. Overall CNS program developed my ability to reason and solve problems.					
17. Coursework provided a solid electronics foundation.					
18. Coursework provided a good understanding of digital/microprocessor electronics.					
19. Coursework provided good programming skills.					
20. Coursework provided a good foundation in network application, implementation, and operation.					
21. Experiences other than coursework (i.e. part-time work, seminars, student groups etc.) were a valuable part of my education at FSU.					
22. Internship experience was an important aspect of my education at FSU.					
23. My overall CNS experience at FSU was satisfying.					
25. I would recommend the CNS program to others.					
26. I would be interested in working to advance the CNS program (i.e. Advisory Committee member, etc.)					

Please provide us with your comments regarding the CNS program from your current perspective. It is our goal to better understand our strengths and weaknesses in courses, facilities, personnel, etc. Your feedback will ensure that our program is on track to continuously improve.

Please tell us about your career:

Which one area best describes your field of work.	a) networks b) software c) embedded systems d) system integration e) other (please state) _____
Which one best describes the work you perform.	a) network administration b) circuit/network design c) people management d) project management e) manufacturing support f) software design g) system/network design h) system integration i) other (please state): _____
Which one area best describes the industry you are employed in.	a) manufacturing b) instrumentation c) networks/communication d) education e) other (please state)
My starting salary at my 1st CNS related position after graduation was:	a) < 30,000 b) 30K to 34K c) 36K to 39K d) 40K to 44K e) 45K to 49K f) 50K to 54K g) 55K to 59K h) 60K to 64K i) 65K to 70K j) > 70,000
My current salary range is:	a) < 30,000 b) 30K to 34K c) 36K to 39K d) 40K to 44K e) 45K to 49K f) 50K to 54K g) 55K to 59K h) 60K to 64K i) 65K to 70K j) > 70,000
I am currently taking classes for..	a) certifications b) a Masters Degree c) a Bachelor Degree d) interest only e) other: _____ f) not taking classes
I plan to further my education by:	a) Pursuing a Masters Degree b) Seminars c) Internet based courses d) Certifications e) No Plans

Electronics and Electrical Engineering Technology Survey

Dear BSEET Graduate: This survey is being done for purposes of program evaluation and continuous improvement. The survey also allows us to track how you are progressing in your career. As a graduate, you are in the unique position of providing feedback on our program. Your input is very important to us in determining areas of strengths as well as weaknesses. Since the BSEET program is continuously improving, we are including a link to our course check sheet for your information:
http://catalog.ferris.edu/programsheets/Technology/electrical_electrengtech_b.pdf

We are very proud of you and your achievements. Please take the time to tell us about them.

Personal Status:	Degree (s) / Year / School
Name: Home Address: Home Phone: _____ email: _____	_____ / / _____ _____ / / _____ _____ / / _____ _____ / / _____

Career Status:	
Current Employment Company Name: _____ Company Address: Work Phone: _____ Work Fax: _____ Work email: _____	Your Title: _____ FSU Degree Year Graduated from FSU: _____

Please answer these questions based on your experience from the FSU - BSEET program. Your thoughtful answers will help us to evaluate and improve our program quality. **As a BSEET graduate:**	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
29. I perform well overall compared to graduates from other universities.					
30. I am able to use written and oral skills effectively.					
31. I have developed good critical thinking, problem solving, and decision-making skills.					
32. I have a strong technical understanding.					
33. I have the ability to apply technical theory to practical situations.					
34. I have adequate mathematical skills.					
35. I am self-motivated and enthusiastic.					
36. I am ready and able to assume responsibility.					
37. I am able to plan effective use of available resources.					
38. I am able to participate as part of a team.					
39. I work well with individuals from diverse backgrounds.					
40. I have good ethical values.					
41. The courses provided a good mix of subjects for my career options.					
42. Courses challenged me intellectually.					
43. Courses motivated me to a higher level of performance.					
44. Overall BSEET program developed my ability to reason and solve problems.					
45. Coursework provided a solid electronics foundation.					
46. Coursework provided a good understanding of digital/microprocessor electronics.					
47. Coursework provided good programming skills.					
48. Coursework provided a good foundation in Control Systems used in manufacturing.					
49. Experiences other than coursework (i.e. part-time work, seminars, student groups etc.) were a valuable part of my education at FSU.					
50. Internship experience was an important aspect of my education at FSU.					
51. My overall BSEET experience at FSU was satisfying.					
31. I would recommend the BSEET program to others.					
32. I would be interested in working to advance the BSEET program (i.e. Advisory Committee member, etc.)					

Please provide us with your comments regarding the BSEET program from your current perspective. It is our goal to better understand our strengths and weaknesses in courses, facilities, personnel, etc. Your feedback will ensure that our program is on track to continuously improve.

Please tell us about your career:

Which one area best describes the over-all business facility at your work location.	f) Manufacturing Plant g) OEM h) Administrative Office i) R & D Lab j) Parts/Equipment Warehouse k) Sales Office / Distributor l) Field Service Center m) Engineering Firm n) Other _____
Which one area best describes the type of product/service produced by your employer.	j) Construction of Production Equipment k) Sales / Distribution of Product l) Engineering of Product m) Engineering of Manufacturing Control Systems n) Engineering of Facilities o) Contract Maintenance p) Contract Engineering q) Other _____
Which one area best describes your primary work function.	a) People management b) Project management c) Software design d) Industrial Control System Integration e) Circuit/network design f) Computer System/network design g) Sales h) Consultant i) Other _____
I am currently taking classes for..	g) certifications h) a Masters Degree i) a Bachelor Degree j) interest only k) other: _____ l) not taking classes
My starting salary at my 1st BSEET related position after graduation was:	k) < 30,000 l) 30K to 34K m) 36K to 39K n) 40K to 44K o) 45K to 49K p) 50K to 54K q) 55K to 59K r) 60K to 64K s) 65K to 70K t) > 70,000
My current salary range is:	k) < 30,000 l) 30K to 34K m) 36K to 39K n) 40K to 44K o) 45K to 49K p) 50K to 54K q) 55K to 59K r) 60K to 64K s) 65K to 70K t) > 70,000

Industrial Electronics Technology Survey

Dear IET Graduate: This survey is being done for purposes of program evaluation and continuous improvement. The survey also allows us to track how you are progressing in your career. As a graduate, you are in the unique position of providing feedback on our program. Your input is very important to us in determining areas of strengths as well as weaknesses. Since the IET program is continuously improving, we are including a link to our course check sheet for your information:
http://catalog.ferris.edu/programsheets/Technology/industrialelecttech_a.pdf

We are very proud of you and your achievements. Please take the time to tell us about them.

Personal Status:	Degree (s) / Year / School
Name: Home Address: Home Phone: _____ email: _____	_____ / / _____ _____ / / _____ _____ / / _____ _____ / / _____

Career Status:	
Current Employment Company Name: _____ Company Address: Work Phone: _____ Work Fax: _____ Work email: _____	Your Title: _____ FSU Degree Year Graduated from FSU: _____

Please answer these questions based on your experience from the FSU - IET program. Your thoughtful answers will help us to evaluate and improve our program quality. **As a IET graduate:**	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
52. I perform well overall compared to graduates from other universities:					
53. I am able to use written and oral skills effectively.					
54. I have developed good critical thinking, problem solving, and decision-making skills.					
55. I have a strong technical understanding.					
56. I have the ability to apply technical theory to practical situations.					
57. I have adequate mathematical skills.					
58. I am self-motivated and enthusiastic.					
59. I am ready and able to assume responsibility.					
60. I am able to plan effective use of available resources.					
61. I am able to participate as part of a team.					
62. I work well with individuals from diverse backgrounds.					
63. I have good ethical values.					
64. The courses provided a good mix of subjects for my career options.					
65. Courses challenged me intellectually.					
66. Courses motivated me to a higher level of performance.					
67. Overall IET program developed my ability to reason and solve problems.					
68. Coursework provided a solid electronics foundation.					
69. Coursework provided a good understanding of digital/microprocessor electronics.					
70. Coursework provided good programming skills.					
71. Coursework provided a good foundation in Control Systems used in manufacturing.					
72. Experiences other than coursework (i.e. part-time work, seminars, student groups etc.) were a valuable part of my education at FSU.					
73. My overall IET experience at FSU was satisfying.					
32. I would recommend the IET program to others.					
33. I would be interested in working to advance the IET program (i.e. Advisory Committee member, etc.)					

Please provide us with your comments regarding the IET program from your current perspective. It is our goal to better understand our strengths and weaknesses in courses, facilities, personnel, etc. Your feedback will ensure that our program is on track to continuously improve.

Please tell us about your career:

Which one area best describes the over-all business facility at your work location.	o) Manufacturing Plant p) OEM q) Administrative Office r) R & D Lab s) Parts/Equipment Warehouse t) Sales Office / Distributor u) Field Service Center v) Engineering Firm w) Other _____
Which one area best describes the type of product/service produced by your employer.	r) Construction of Production Equipment s) Sales / Distribution of Product t) Engineering of Product u) Engineering of Manufacturing Control Systems v) Engineering of Facilities w) Contract Maintenance x) Contract Engineering y) Other _____
Which one area best describes your primary work function.	j) People management k) Project management l) Software design m) Industrial Control System Integration n) Circuit/network design o) Computer System/network design p) Sales q) Consultant r) Other _____
I am currently taking classes for..	m) certifications n) a Masters Degree o) a Bachelor Degree p) interest only q) other: _____ r) not taking classes
My starting salary at my 1st IET related position after graduation was:	u) <20,000 v) 20K to 24K w) 25K to 29K x) 30K to 34K y) 36K to 39K z) 40K to 44K aa) 45K to 49K bb) 50K to 54K cc) 55K to 59K dd) > 60,000
My current salary range is:	u) < 20,000 v) 20K to 24K w) 25K to 29K x) 30K to 34K y) 36K to 39K z) 40K to 44K aa) 45K to 49K bb) 50K to 54K cc) 55K to 59K dd) > 60,000

GRADUATE SURVEY DATA

Computer Networks and Systems Survey

CNS/EET Dept APR...CNS Alumni

Frequencies

Prepared by: Institutional Research & Testing, 02/08

Statistics

	N		Mean	Median	Std. Deviation
	Valid	Missing	Valid	Missing	Valid
q1a I: Perform well overall compared to grads from other univs	14	1	4.57	5.00	.756
q1b I: Able to use written & oral skills effectively	14	1	4.36	5.00	.929
q1c I: Dev'd good crit thinki, prob solving & decision-making skills	14	1	4.50	5.00	.650
q1d I: Strong technical understanding	14	1	4.64	5.00	.633
q1e I: Apply technical theory to practical situations	14	1	4.57	5.00	.646
q1f I: Adequate mathematical skills	14	1	4.36	4.50	.745
q1g I: Self-motivated & enthusiastic	14	1	4.57	5.00	.514
q1h I: Ready & able to assume responsibility	14	1	4.43	4.50	.646
q1i I: Plan effective use of available resources	14	1	4.43	4.50	.646
q1j I: Participate as part of a team	14	1	4.71	5.00	.469
q1k I: Work well with indiv's from diverse backgrounds	14	1	4.50	5.00	.855
q1l I: Good ethical values	14	1	4.71	5.00	.469
q1m Courses provided a good mix of subjects for my career options	14	1	3.71	4.00	.994
q1n Courses challenged me intellectually	14	1	4.21	4.00	.802
q1o Courses motivated me to a higher level of performance	14	1	4.07	4.00	.730
q1p Overall CNS prog developed my ability to reason/solve problems	14	1	4.07	4.00	.997
q1q Coursework: Solid electronics foundation	14	1	4.14	4.00	.864
q1r Coursework: Understanding of digital/microprocessor electronics	14	1	4.21	4.00	.893
q1s Coursework: Good programming skills	14	1	3.71	4.00	.914
q1t Coursework: Good foundation in network application, etc.	14	1	4.29	4.00	.825
q1u Experiences other than coursework were valuable	14	1	3.79	4.00	.975
q1v Internship experience was an important aspect of my education	14	1	3.79	4.00	1.251
q1w My overall CNS experience at FSU was satisfying	14	1	4.21	4.00	.802
q1x I would recommend the CNS program to others	14	1	4.29	4.00	.726
q1y Interested in working to advance the CNS program	14	1	4.00	4.00	1.177
q2 Your field of work	14	1	2.57	2.00	1.785
q2a Field of work specified	15	0			
q3 Work you perform	14	1	5.50	8.50	4.053
q3a Work you perform specified	15	0			
q4 Industry you're employed in	14	1	3.43	3.50	1.555
q4a Industry specified	15	0			

q5 Starting salary range at my 1st CNS related position	14	1	3.93	4.50	2.129
q6 Current salary range	13	2	5.31	6.00	2.016
q7 Currently taking classes for	14	1	2.50	1.00	2.210
q7a Classes specified	15	0			
q8 Plan to further my education by	14	1	3.50	4.00	1.605
q9 Comments	15	0			
q10 Name	15	0			
q11 Home address	15	0			
q12 Home phone	15	0			
q13 Personal e-mail	15	0			
q14 Degrees/Year/School	15	0			
q15 Company name	15	0			
q16 Company address	15	0			
q17 Your title	15	0			
q18 FSU Degree & Year graduated from FSU	15	0			
q19 Work phone	15	0			
q20 Work fax	15	0			
q21 Work e-mail	15	0			

Frequency Table

q1a I: Perform well overall compared to grads from other univs

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neutral	2	13.3	14.3	14.3
	Somewhat Agree	2	13.3	14.3	28.6
	Strongly Agree	10	66.7	71.4	100.0
	Total	14	93.3	100.0	
Missing	System	1	6.7		
Total		15	100.0		

q1b I: Able to use written & oral skills effectively

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Disagree	1	6.7	7.1	7.1
	Neutral	1	6.7	7.1	14.3
	Somewhat Agree	4	26.7	28.6	42.9
	Strongly Agree	8	53.3	57.1	100.0
	Total	14	93.3	100.0	
Missing	System	1	6.7		
Total		15	100.0		

q1c I: Developed good crit thinking, prob solving & decision-making skills

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neutral	1	6.7	7.1	7.1
	Somewhat Agree	5	33.3	35.7	42.9
	Strongly Agree	8	53.3	57.1	100.0
	Total	14	93.3	100.0	
Missing	System	1	6.7		
Total		15	100.0		

q1d I: Strong technical understanding

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neutral	1	6.7	7.1	7.1
	Somewhat Agree	3	20.0	21.4	28.6
	Strongly Agree	10	66.7	71.4	100.0
	Total	14	93.3	100.0	
Missing	System	1	6.7		
Total		15	100.0		

q1e I: Apply technical theory to practical situations

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neutral	1	6.7	7.1	7.1
	Somewhat Agree	4	26.7	28.6	35.7
	Strongly Agree	9	60.0	64.3	100.0
	Total	14	93.3	100.0	
Missing	System	1	6.7		
Total		15	100.0		

q1f I: Adequate mathematical skills

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neutral	2	13.3	14.3	14.3
	Somewhat Agree	5	33.3	35.7	50.0
	Strongly Agree	7	46.7	50.0	100.0
	Total	14	93.3	100.0	
Missing	System	1	6.7		
Total		15	100.0		

q1g I: Self-motivated & enthusiastic

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Agree	6	40.0	42.9	42.9
	Strongly Agree	8	53.3	57.1	100.0
	Total	14	93.3	100.0	
Missing	System	1	6.7		
Total		15	100.0		

q1h I: Ready & able to assume responsibility

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neutral	1	6.7	7.1	7.1
	Somewhat Agree	6	40.0	42.9	50.0
	Strongly Agree	7	46.7	50.0	100.0
	Total	14	93.3	100.0	
Missing	System	1	6.7		
Total		15	100.0		

q1i I: Plan effective use of available resources

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neutral	1	6.7	7.1	7.1
	Somewhat Agree	6	40.0	42.9	50.0
	Strongly Agree	7	46.7	50.0	100.0
	Total	14	93.3	100.0	
Missing	System	1	6.7		
Total		15	100.0		

q1j I: Participate as part of a team

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Agree	4	26.7	28.6	28.6
	Strongly Agree	10	66.7	71.4	100.0
	Total	14	93.3	100.0	
Missing	System	1	6.7		
Total		15	100.0		

q1k I: Work well with indiv's from diverse backgrounds

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Disagree	1	6.7	7.1	7.1
	Somewhat Agree	4	26.7	28.6	35.7
	Strongly Agree	9	60.0	64.3	100.0
	Total	14	93.3	100.0	
Missing	System	1	6.7		
Total		15	100.0		

q1l I: Good ethical values

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Agree	4	26.7	28.6	28.6
	Strongly Agree	10	66.7	71.4	100.0
	Total	14	93.3	100.0	
Missing	System	1	6.7		
Total		15	100.0		

q1m Courses provided a good mix of subjects for my career options

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Disagree	2	13.3	14.3	14.3
	Neutral	3	20.0	21.4	35.7
	Somewhat Agree	6	40.0	42.9	78.6
	Strongly Agree	3	20.0	21.4	100.0
	Total	14	93.3	100.0	
Missing	System	1	6.7		
Total		15	100.0		

q1n Courses challenged me intellectually

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neutral	3	20.0	21.4	21.4
	Somewhat Agree	5	33.3	35.7	57.1
	Strongly Agree	6	40.0	42.9	100.0
	Total	14	93.3	100.0	
Missing	System	1	6.7		
Total		15	100.0		

q1o Courses motivated me to a higher level of performance

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neutral	3	20.0	21.4	21.4
	Somewhat Agree	7	46.7	50.0	71.4
	Strongly Agree	4	26.7	28.6	100.0
	Total	14	93.3	100.0	
Missing	System	1	6.7		
Total		15	100.0		

q1p Overall CNS prog developed my ability to reason/solve problems

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Disagree	1	6.7	7.1	7.1
	Neutral	3	20.0	21.4	28.6
	Somewhat Agree	4	26.7	28.6	57.1
	Strongly Agree	6	40.0	42.9	100.0
	Total	14	93.3	100.0	
Missing	System	1	6.7		
Total		15	100.0		

q1q Coursework: Solid electronics foundation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Disagree	1	6.7	7.1	7.1
	Neutral	1	6.7	7.1	14.3
	Somewhat Agree	7	46.7	50.0	64.3
	Strongly Agree	5	33.3	35.7	100.0
	Total	14	93.3	100.0	
Missing	System	1	6.7		
Total		15	100.0		

q1r Coursework: Understanding of digital/microprocessor electronics

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Disagree	1	6.7	7.1	7.1
	Neutral	1	6.7	7.1	14.3
	Somewhat Agree	6	40.0	42.9	57.1
	Strongly Agree	6	40.0	42.9	100.0
	Total	14	93.3	100.0	
Missing	System	1	6.7		

Total		15	100.0		

q1s Coursework: Good programming skills

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Disagree	2	13.3	14.3	14.3
	Neutral	2	13.3	14.3	28.6
	Somewhat Agree	8	53.3	57.1	85.7
	Strongly Agree	2	13.3	14.3	100.0
	Total	14	93.3	100.0	
Missing	System	1	6.7		
Total		15	100.0		

q1t Coursework: Good foundation in network application, etc.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Disagree	1	6.7	7.1	7.1
	Somewhat Agree	7	46.7	50.0	57.1
	Strongly Agree	6	40.0	42.9	100.0
	Total	14	93.3	100.0	
Missing	System	1	6.7		
Total		15	100.0		

q1u Experiences other than coursework were valuable

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Disagree	1	6.7	7.1	7.1
	Neutral	5	33.3	35.7	42.9
	Somewhat Agree	4	26.7	28.6	71.4
	Strongly Agree	4	26.7	28.6	100.0
	Total	14	93.3	100.0	
Missing	System	1	6.7		
Total		15	100.0		

q1v Internship experience was an important aspect of my education

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	6.7	7.1	7.1
	Somewhat Disagree	1	6.7	7.1	14.3
	Neutral	3	20.0	21.4	35.7

	Somewhat Agree	*4*	*26.7*	*28.6*	*64.3*
	Strongly Agree	*5*	*33.3*	*35.7*	*100.0*
	Total	*14*	*93.3*	*100.0*	
Missing	System	*1*	*6.7*		
Total		*15*	*100.0*		

q1w My overall CNS experience at FSU was satisfying

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neutral	*3*	*20.0*	*21.4*	*21.4*
	Somewhat Agree	*5*	*33.3*	*35.7*	*57.1*
	Strongly Agree	*6*	*40.0*	*42.9*	*100.0*
	Total	*14*	*93.3*	*100.0*	
Missing	System	*1*	*6.7*		
Total		*15*	*100.0*		

q1x I would recommend the CNS program to others

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neutral	*2*	*13.3*	*14.3*	*14.3*
	Somewhat Agree	*6*	*40.0*	*42.9*	*57.1*
	Strongly Agree	*6*	*40.0*	*42.9*	*100.0*
	Total	*14*	*93.3*	*100.0*	
Missing	System	*1*	*6.7*		
Total		*15*	*100.0*		

q1y Interested in working to advance the CNS program

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	*1*	*6.7*	*7.1*	*7.1*
	Neutral	*3*	*20.0*	*21.4*	*28.6*
	Somewhat Agree	*4*	*26.7*	*28.6*	*57.1*
	Strongly Agree	*6*	*40.0*	*42.9*	*100.0*
	Total	*14*	*93.3*	*100.0*	
Missing	System	*1*	*6.7*		
Total		*15*	*100.0*		

q2 Your field of work

	Frequency	Percent	Valid Percent	Cumulative Percent

Valid	Networks	6	40.0	42.9	42.9
	Software	3	20.0	21.4	64.3
	System Integration	1	6.7	7.1	71.4
	Other	4	26.7	28.6	100.0
	Total	14	93.3	100.0	
Missing	System	1	6.7		
Total		15	100.0		

q2a Field of work specified

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		11	73.3	73.3	73.3
	Do not have a job right now. I am finishing up my other degree right now	1	6.7	6.7	80.0
	Healthcare Software Support	1	6.7	6.7	86.7
	Teacher	1	6.7	6.7	93.3
	Workstation Support (2nd Level Client Interaction)	1	6.7	6.7	100.0
	Total	15	100.0	100.0	

q3 Work you perform

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Network Administration	6	40.0	42.9	42.9
	System Integration	1	6.7	7.1	50.0
	Other	7	46.7	50.0	100.0
	Total	14	93.3	100.0	
Missing	System	1	6.7		
Total		15	100.0		

q3a Work you perform specified

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		8	53.3	53.3	53.3
	Desktop Management and Desktop Support	1	6.7	6.7	60.0
	Hacking	1	6.7	6.7	66.7
	I am not working yet	1	6.7	6.7	73.3
	Networking, Telephony, etc...	1	6.7	6.7	80.0
	Resolve problems that Clients (fellow employees) have with their workstations	1	6.7	6.7	86.7
	Technical Support	1	6.7	6.7	93.3
	Web development / application programming	1	6.7	6.7	100.0

	Total	*15*	*100.0*	*100.0*	

q4 Industry you're employed in

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Manufacturing	*3*	*20.0*	*21.4*	*21.4*
	Networks/Communication	*4*	*26.7*	*28.6*	*50.0*
	Education	*2*	*13.3*	*14.3*	*64.3*
	Other	*5*	*33.3*	*35.7*	*100.0*
	Total	*14*	*93.3*	*100.0*	
Missing	System	*1*	*6.7*		
Total		*15*	*100.0*		

q4a Industry specified

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		*10*	*66.7*	*66.7*	*66.7*
	Electric and Gas Utility	*1*	*6.7*	*6.7*	*73.3*
	Health Care	*1*	*6.7*	*6.7*	*80.0*
	Hopefully Networking in Healthcare	*1*	*6.7*	*6.7*	*86.7*
	Insurance/Finanical	*1*	*6.7*	*6.7*	*93.3*
	Web Development	*1*	*6.7*	*6.7*	*100.0*
	Total	*15*	*100.0*	*100.0*	

q5 Starting salary range at my 1st CNS related position

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than $30,000	*3*	*20.0*	*21.4*	*21.4*
	$30,000-$34,999	*1*	*6.7*	*7.1*	*28.6*
	$35,000-$39,999	*2*	*13.3*	*14.3*	*42.9*
	$40,000-$44,999	*1*	*6.7*	*7.1*	*50.0*
	$45,000-$49,999	*4*	*26.7*	*28.6*	*78.6*
	$50,000-$54,999	*1*	*6.7*	*7.1*	*85.7*
	$55,000-$59,999	*2*	*13.3*	*14.3*	*100.0*
	Total	*14*	*93.3*	*100.0*	
Missing	System	*1*	*6.7*		
Total		*15*	*100.0*		

q6 Current salary range

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than $30,000	1	6.7	7.7	7.7
	$30,000-$34,999	1	6.7	7.7	15.4
	$40,000-$44,999	1	6.7	7.7	23.1
	$45,000-$49,999	3	20.0	23.1	46.2
	$50,000-$54,999	3	20.0	23.1	69.2
	$55,000-$59,999	3	20.0	23.1	92.3
	$60,000-$64,999	1	6.7	7.7	100.0
	Total	13	86.7	100.0	
Missing	System	2	13.3		
Total		15	100.0		

q7 Currently taking classes for

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not taking classes	9	60.0	64.3	64.3
	Certification(s)	1	6.7	7.1	71.4
	Master's degree	1	6.7	7.1	78.6
	Other	3	20.0	21.4	100.0
	Total	14	93.3	100.0	
Missing	System	1	6.7		
Total		15	100.0		

q7a Classes specified

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		12	80.0	80.0	80.0
	Futhering Cisco Certs.	1	6.7	6.7	86.7
	Getting my degree in Nuclear Medicine	1	6.7	6.7	93.3
	PhD	1	6.7	6.7	100.0
	Total	15	100.0	100.0	

q8 Plan to further my education by

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No plans	3	20.0	21.4	21.4
	Seminars	1	6.7	7.1	28.6
	Internet based courses	1	6.7	7.1	35.7
	Certification(s)	4	26.7	28.6	64.3
	Pursuing a Master's degree	5	33.3	35.7	100.0

	Total	*14*	*93.3*	*100.0*	
Missing	System	*1*	*6.7*		
Total		*15*	*100.0*		

q9 Comments

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		*5*	*33.3*	*33.3*	*33.3*
	CNS provided me the broad array of skills to be more useful at my job. My supervisor knows that I'll be able to fill the most needed position or task, not just the one I'm officially trained in.	*1*	*6.7*	*6.7*	*40.0*
	Development of focuses might be useful, such as a choice of base CNS classes with more networking or digital systems. Programming classes need to have a cumulative result, such as assignments that build to a more complex application instead of several small programs that only illustrate a single concept.	*1*	*6.7*	*6.7*	*46.7*
	Excellent Program- Please keep DC and AC circuits classes...truly sets us apart from graduates of other universities. There is a lab formerly given by Prof. Cook within the Control Networks class that involves simulating a TDR w/ a function generator and O-Scope. If this lab isn't currently part of the CNS curriculum, I highly recommend adding it back. Consider incorporating labs involving fiber (fabricating fiber patch cords, splicing, etc) as fiber is becoming more popular daily.	*1*	*6.7*	*6.7*	*53.3*
	I feel the CNS program is a good program, but it has room for improvement. Every company in the world uses computers today. There are computers in Healthcare, Insurance, Banks, Law firms, but yet it seems students do not get a chance to go to these places for internships. You have to get the word out to corporations that Ferris students need internships, its the only way to get their names out there.	*1*	*6.7*	*6.7*	*60.0*
	I learned a lot about things I don't use.	*1*	*6.7*	*6.7*	*66.7*
	I was a student in one of the firt years of the program. I feel that the networking aspects of the program were very weak. Electronics, Microprocessors and programming were all good.	*1*	*6.7*	*6.7*	*73.3*
	I wish there had been more on scripting, both Shell and even VB scripting.	*1*	*6.7*	*6.7*	*80.0*
	NA	*1*	*6.7*	*6.7*	*86.7*

	The education provided by the program was helpful in my current position - I had to finance my education mostly with student loans and only received grants/scholarships toward the end of my time in the CNS program - It would be better for Ferris to wait 10 years before contacting me regarding donations to scholarships - By then I will have paid back the money I hadd to borrow, having not been given such an opporitunity.	*1*	*6.7*	*6.7*	*93.3*
	Will let you know in person. :)	*1*	*6.7*	*6.7*	*100.0*
	Total	*15*	*100.0*	*100.0*	

q10 Name

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		*2*	*13.3*	*13.3*	*13.3*
	----------	*1*	*6.7*	*6.7*	*20.0*
	----------	*1*	*6.7*	*6.7*	*26.7*
	----------	*1*	*6.7*	*6.7*	*33.3*
	----------	*1*	*6.7*	*6.7*	*40.0*
	----------	*1*	*6.7*	*6.7*	*46.7*
	----------	*1*	*6.7*	*6.7*	*53.3*
	----------	*1*	*6.7*	*6.7*	*60.0*
	----------	*1*	*6.7*	*6.7*	*66.7*
	----------	*1*	*6.7*	*6.7*	*73.3*
	----------	*1*	*6.7*	*6.7*	*80.0*
	----------	*1*	*6.7*	*6.7*	*86.7*
	----------	*1*	*6.7*	*6.7*	*93.3*
	----------	*1*	*6.7*	*6.7*	*100.0*
	Total	*15*	*100.0*	*100.0*	

q11 Home address

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	----------	*4*	*26.7*	*26.7*	*26.7*
	----------	*1*	*6.7*	*6.7*	*33.3*
	----------	*1*	*6.7*	*6.7*	*40.0*
	----------	*1*	*6.7*	*6.7*	*46.7*
	----------	*1*	*6.7*	*6.7*	*53.3*
	----------	*1*	*6.7*	*6.7*	*60.0*
	----------	*1*	*6.7*	*6.7*	*66.7*
	----------	*1*	*6.7*	*6.7*	*73.3*
	----------	*1*	*6.7*	*6.7*	*80.0*
	----------	*1*	*6.7*	*6.7*	*86.7*
	----------	*1*	*6.7*	*6.7*	*93.3*

	----------	1	6.7	6.7	100.0
	Total	15	100.0	100.0	

q12 Home phone

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		4	26.7	26.7	26.7
	----------	1	6.7	6.7	33.3
	----------	1	6.7	6.7	40.0
	----------	1	6.7	6.7	46.7
	----------	1	6.7	6.7	53.3
	----------	1	6.7	6.7	60.0
	----------	1	6.7	6.7	66.7
	----------	1	6.7	6.7	73.3
	----------	1	6.7	6.7	80.0
	----------	1	6.7	6.7	86.7
	----------	1	6.7	6.7	93.3
	----------	1	6.7	6.7	100.0
	Total	15	100.0	100.0	

q13 Personal e-mail

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	----------	1	6.7	6.7	6.7
	----------	3	20.0	20.0	26.7
	----------	1	6.7	6.7	33.3
	----------	1	6.7	6.7	40.0
	----------	1	6.7	6.7	46.7
	----------	1	6.7	6.7	53.3
	----------	1	6.7	6.7	60.0
	----------	1	6.7	6.7	66.7
	----------	1	6.7	6.7	73.3
	----------	1	6.7	6.7	80.0
	----------	1	6.7	6.7	86.7
	----------	1	6.7	6.7	93.3
	----------	1	6.7	6.7	100.0
	Total	15	100.0	100.0	

q14 Degrees/Year/School

	Frequency	Percent	Valid Percent	Cumulative Percent

		4	26.7	26.7	26.7
	BS CNS; Associates Degree Nuclear Medicine	1	6.7	6.7	33.3
	Bachelors in CNS 2001	1	6.7	6.7	40.0
	Bachelors in CNS, Ferris, 2007	1	6.7	6.7	46.7
	BS (CNS)/2007/College of Technology	1	6.7	6.7	53.3
	BS ECNS, AS EET	1	6.7	6.7	60.0
Valid	BS in CNS 2006 FSU MS in ISM 2007 FSU	1	6.7	6.7	66.7
	CNS/2006/Ferris State	1	6.7	6.7	73.3
	CNS/2006/Ferris State University	1	6.7	6.7	80.0
	CNS/2007/FSU EET/2007/FSU IET/2007/FSU	1	6.7	6.7	86.7
	Computer Networks & Systems - 2002 - FSU	1	6.7	6.7	93.3
	MS CS/2003/JHU	1	6.7	6.7	100.0
	Total	15	100.0	100.0	

q15 Company name

		Frequency	Percent	Valid Percent	Cumulative Percent
		3	20.0	20.0	20.0
	Ace Communications Group	1	6.7	6.7	26.7
	Alticor Inc	1	6.7	6.7	33.3
	Alticor, Inc.	1	6.7	6.7	40.0
	Birch Run Area School	1	6.7	6.7	46.7
	Boeing Commercial Airplanes	1	6.7	6.7	53.3
Valid	Consumers Energy Company	1	6.7	6.7	60.0
	DirecTV	1	6.7	6.7	66.7
	Frankenmuth Mutual Insurance	1	6.7	6.7	73.3
	FSU	1	6.7	6.7	80.0
	Intuitive Software, LLC	1	6.7	6.7	86.7
	Sodexho	1	6.7	6.7	93.3
	The University of Michigan Hospital	1	6.7	6.7	100.0
	Total	15	100.0	100.0	

q16 Company address

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		5	33.3	33.3	33.3
	1 Mutual Ave. Frankenmuth, MI	1	6.7	6.7	40.0
	12400 Church St. Birch Run, MI 48415	1	6.7	6.7	46.7
	4000 Clay Ave SW Grand Rapids, MI 49548	1	6.7	6.7	53.3
	5454 Garton Rd Castle Rock CO, 80104	1	6.7	6.7	60.0
	7575 Fulton St Ada, MI 49355	1	6.7	6.7	66.7
	7575 Fulton St. East Ada, MI 49355	1	6.7	6.7	73.3
	Big Rapids	1	6.7	6.7	80.0

	Brighton, MI	*1*	*6.7*	*6.7*	*86.7*
	Mesick, MI	*1*	*6.7*	*6.7*	*93.3*
	Seattle, WA	*1*	*6.7*	*6.7*	*100.0*
	Total	*15*	*100.0*	*100.0*	

q17 Your title

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		*3*	*20.0*	*20.0*	*20.0*
	Assistant Professor	*1*	*6.7*	*6.7*	*26.7*
	Assoc PC Lan/Admin	*1*	*6.7*	*6.7*	*33.3*
	Associate Data Telecom Specialist	*1*	*6.7*	*6.7*	*40.0*
	ATM/IT Network Technician	*1*	*6.7*	*6.7*	*46.7*
	CNMT	*1*	*6.7*	*6.7*	*53.3*
	Developer, part owner	*1*	*6.7*	*6.7*	*60.0*
	Director of Technology	*1*	*6.7*	*6.7*	*66.7*
	EE Sys Design Engineer	*1*	*6.7*	*6.7*	*73.3*
	Help Desk Analyst	*1*	*6.7*	*6.7*	*80.0*
	Network Analyst	*1*	*6.7*	*6.7*	*86.7*
	Network Operations Specialist	*1*	*6.7*	*6.7*	*93.3*
	Workstation Support Tech	*1*	*6.7*	*6.7*	*100.0*
	Total	*15*	*100.0*	*100.0*	

q18 FSU Degree & Year graduated from FSU

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		*3*	*20.0*	*20.0*	*20.0*
	Bachelor of Science, 2007	*1*	*6.7*	*6.7*	*26.7*
	BS ECNS MAY 2008	*1*	*6.7*	*6.7*	*33.3*
	CNS '07	*1*	*6.7*	*6.7*	*40.0*
	CNS & 2006	*1*	*6.7*	*6.7*	*46.7*
	CNS 2000	*1*	*6.7*	*6.7*	*53.3*
	CNS 2001	*1*	*6.7*	*6.7*	*60.0*
	CNS, 2006	*1*	*6.7*	*6.7*	*66.7*
	CNS, Class of 2005	*1*	*6.7*	*6.7*	*73.3*
	Computer Networks & Systems - 2002	*1*	*6.7*	*6.7*	*80.0*
	Computer Networks and Systems 2006	*1*	*6.7*	*6.7*	*86.7*
	EET/2007	*1*	*6.7*	*6.7*	*93.3*
	May 2006 BS, May 2008 AS	*1*	*6.7*	*6.7*	*100.0*
	Total	*15*	*100.0*	*100.0*	

q19 Work phone

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		7	46.7	46.7	46.7
	206-218-8264	1	6.7	6.7	53.3
	231-885-3163	1	6.7	6.7	60.0
	303-660-7192	1	6.7	6.7	66.7
	616-530-4357	1	6.7	6.7	73.3
	616-787-4813	1	6.7	6.7	80.0
	734.536.5921	1	6.7	6.7	86.7
	989-244-5015	1	6.7	6.7	93.3
	989-652-6121 ext 2952	1	6.7	6.7	100.0
	Total	15	100.0	100.0	

q20 Work fax

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		13	86.7	86.7	86.7
	n/a	1	6.7	6.7	93.3
	unlisted	1	6.7	6.7	100.0
	Total	15	100.0	100.0	

q21 Work e-mail

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		5	33.3	33.3	33.3
	alangenderfer@acecomgroup.com	1	6.7	6.7	40.0
	bfitzgerald@intuitive-soft.com	1	6.7	6.7	46.7
	bkbechtel@cmsenergy.com	1	6.7	6.7	53.3
	breichert@birchrun.k12.mi.us	1	6.7	6.7	60.0
	david.callahan@ffgrp.com	1	6.7	6.7	66.7
	Eric.Lippitt@sodexhousa.com	1	6.7	6.7	73.3
	Marshall.a.gladding@boeing.com	1	6.7	6.7	80.0
	michael.rizzo@alticor.com	1	6.7	6.7	86.7
	pmueller@directv.com	1	6.7	6.7	93.3
	ttyler@alticor.com	1	6.7	6.7	100.0
	Total	15	100.0	100.0	

Electronics and Electrical Engineering Technology Survey

CNS/EET Dept APR...EET Alumni

Frequencies

Prepared by: Institutional Research & Testing, 02/08

Statistics

	N		Mean	Median	Std. Deviation
	Valid	Missing	Valid	Missing	Valid
q1a I: Perform well overall compared to grads from other univs	26	1	4.04	4.00	1.183
q1b I: Able to use written & oral skills effectively	26	1	4.42	5.00	1.102
q1c I: Dev'd good crit think, prob solving & decision-making skills	26	1	4.46	5.00	.989
q1d I: Strong technical understanding	26	1	4.31	5.00	1.123
q1e I: Apply technical theory to practical situations	26	1	4.27	5.00	1.116
q1f I: Adequate mathematical skills	26	1	4.27	5.00	1.116
q1g I: Self-motivated & enthusiastic	26	1	4.27	5.00	1.151
q1h I: Ready & able to assume responsibility	26	1	4.46	5.00	1.104
q1i I: Plan effective use of available resources	26	1	4.35	5.00	1.093
q1j I: Participate as part of a team	26	1	4.50	5.00	1.105
q1k I: Work well with indiv's from diverse backgrounds	26	1	4.42	5.00	1.102
q1l I: Good ethical values	26	1	4.46	5.00	1.104
q1m Courses good mix of subjects for my career options	26	1	4.00	4.50	1.296
q1n Courses challenged me intellectually	26	1	4.23	5.00	1.177
q1o Courses motivated me to a higher level of performance	26	1	4.04	4.00	1.076
q1p Overall BSEET prog dev'd my ability to reason/solve problems	26	1	3.88	4.00	1.243
q1q Coursework: Solid electronics foundation	26	1	4.19	5.00	1.167
q1r Coursework: Understanding of digital/microprocessor electronics	26	1	4.04	4.00	1.216
q1s Coursework: Good programming skills	26	1	3.69	4.00	1.225
q1t Coursework: Good foundation in Control Systems used	26	1	3.77	4.00	1.243
q1u Experiences other than coursework were valuable	26	1	3.23	3.00	1.275
q1v Internship experience was an important aspect of my education	26	1	3.42	4.00	1.474
q1w My overall BSEET experience at FSU was satisfying	26	1	4.15	4.00	1.120
q1x I would recommend the BSEET program to others	26	1	4.08	4.00	1.129
q1y Interested in working to advance the BSEET program	26	1	3.62	3.50	1.134
q2 Overall business facility	26	1	4.96	4.50	3.583
q2a Business facility specified	27	0			
q3 Product/service produced	26	1	4.81	4.00	2.562
q3a Product/service specified	27	0			
q4 Primary work function	25	2	5.00	4.00	3.136
q4a Work function specified	27	0			
q5 Currently taking classes for	26	1	1.62	1.00	1.329
q5a Classes specified	27	0			
q6 Starting salary range at 1st BSEET related position	25	2	2.48	2.00	1.503
q7 Current salary range	26	1	7.73	9.50	2.878

q8 Comments	*27*	*0*			
q9 Name	*27*	*0*			
q10 Home address	*27*	*0*			
q11 Home phone	*27*	*0*			
q12 Personal e-mail	*27*	*0*			
q13 Degrees/Year/School	*27*	*0*			
q14 Company name	*27*	*0*			
q15 Company address	*27*	*0*			
q16 Your title	*27*	*0*			
q17 FSU Degree & Year graduated from FSU	*27*	*0*			
q18 Work phone	*27*	*0*			
q19 Work fax	*27*	*0*			
q20 Work e-mail	*27*	*0*			

Frequency Table

q1a I: Perform well overall compared to grads from other univs

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	*2*	*7.4*	*7.7*	*7.7*
	Neutral	*5*	*18.5*	*19.2*	*26.9*
	Somewhat Agree	*7*	*25.9*	*26.9*	*53.8*
	Strongly Agree	*12*	*44.4*	*46.2*	*100.0*
	Total	*26*	*96.3*	*100.0*	
Missing	System	*1*	*3.7*		
Total		*27*	*100.0*		

q1b I: Able to use written & oral skills effectively

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	*2*	*7.4*	*7.7*	*7.7*
	Somewhat Agree	*7*	*25.9*	*26.9*	*34.6*
	Strongly Agree	*17*	*63.0*	*65.4*	*100.0*
	Total	*26*	*96.3*	*100.0*	
Missing	System	*1*	*3.7*		
Total		*27*	*100.0*		

q1c I: Dev'd good crit think, prob solving & decision-making skills

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	*1*	*3.7*	*3.8*	*3.8*
	Somewhat Disagree	*1*	*3.7*	*3.8*	*7.7*

	Somewhat Agree	*7*	*25.9*	*26.9*	*34.6*
	Strongly Agree	*17*	*63.0*	*65.4*	*100.0*
	Total	*26*	*96.3*	*100.0*	
Missing	System	*1*	*3.7*		
Total		*27*	*100.0*		

q1d I: Strong technical understanding

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	*2*	*7.4*	*7.7*	*7.7*
	Neutral	*1*	*3.7*	*3.8*	*11.5*
	Somewhat Agree	*8*	*29.6*	*30.8*	*42.3*
	Strongly Agree	*15*	*55.6*	*57.7*	*100.0*
	Total	*26*	*96.3*	*100.0*	
Missing	System	*1*	*3.7*		
Total		*27*	*100.0*		

q1e I: Apply technical theory to practical situations

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	*2*	*7.4*	*7.7*	*7.7*
	Neutral	*1*	*3.7*	*3.8*	*11.5*
	Somewhat Agree	*9*	*33.3*	*34.6*	*46.2*
	Strongly Agree	*14*	*51.9*	*53.8*	*100.0*
	Total	*26*	*96.3*	*100.0*	
Missing	System	*1*	*3.7*		
Total		*27*	*100.0*		

q1f I: Adequate mathematical skills

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	*2*	*7.4*	*7.7*	*7.7*
	Neutral	*1*	*3.7*	*3.8*	*11.5*
	Somewhat Agree	*9*	*33.3*	*34.6*	*46.2*
	Strongly Agree	*14*	*51.9*	*53.8*	*100.0*
	Total	*26*	*96.3*	*100.0*	
Missing	System	*1*	*3.7*		
Total		*27*	*100.0*		

q1g I: Self-motivated & enthusiastic

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	2	7.4	7.7	7.7
	Neutral	2	7.4	7.7	15.4
	Somewhat Agree	7	25.9	26.9	42.3
	Strongly Agree	15	55.6	57.7	100.0
	Total	26	96.3	100.0	
Missing	System	1	3.7		
Total		27	100.0		

q1h I: Ready & able to assume responsibility

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	2	7.4	7.7	7.7
	Somewhat Agree	6	22.2	23.1	30.8
	Strongly Agree	18	66.7	69.2	100.0
	Total	26	96.3	100.0	
Missing	System	1	3.7		
Total		27	100.0		

q1i I: Plan effective use of available resources

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	2	7.4	7.7	7.7
	Somewhat Agree	9	33.3	34.6	42.3
	Strongly Agree	15	55.6	57.7	100.0
	Total	26	96.3	100.0	
Missing	System	1	3.7		
Total		27	100.0		

q1j I: Participate as part of a team

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	2	7.4	7.7	7.7
	Somewhat Agree	5	18.5	19.2	26.9
	Strongly Agree	19	70.4	73.1	100.0
	Total	26	96.3	100.0	
Missing	System	1	3.7		
Total		27	100.0		

q1k I: Work well with indiv's from diverse backgrounds

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	2	7.4	7.7	7.7
	Somewhat Agree	7	25.9	26.9	34.6
	Strongly Agree	17	63.0	65.4	100.0
	Total	26	96.3	100.0	
Missing	System	1	3.7		
Total		27	100.0		

q1l I: Good ethical values

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	2	7.4	7.7	7.7
	Somewhat Agree	6	22.2	23.1	30.8
	Strongly Agree	18	66.7	69.2	100.0
	Total	26	96.3	100.0	
Missing	System	1	3.7		
Total		27	100.0		

q1m Courses good mix of subjects for my career options

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	2	7.4	7.7	7.7
	Somewhat Disagree	2	7.4	7.7	15.4
	Neutral	3	11.1	11.5	26.9
	Somewhat Agree	6	22.2	23.1	50.0
	Strongly Agree	13	48.1	50.0	100.0
	Total	26	96.3	100.0	
Missing	System	1	3.7		
Total		27	100.0		

q1n Courses challenged me intellectually

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	2	7.4	7.7	7.7
	Neutral	3	11.1	11.5	19.2
	Somewhat Agree	6	22.2	23.1	42.3
	Strongly Agree	15	55.6	57.7	100.0
	Total	26	96.3	100.0	
Missing	System	1	3.7		

Total		27	100.0		

q1o Courses motivated me to a higher level of performance

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	2	7.4	7.7	7.7
	Neutral	2	7.4	7.7	15.4
	Somewhat Agree	13	48.1	50.0	65.4
	Strongly Agree	9	33.3	34.6	100.0
	Total	26	96.3	100.0	
Missing	System	1	3.7		
Total		27	100.0		

q1p Overall BSEET prog dev'd my ability to reason/solve problems

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	2	7.4	7.7	7.7
	Somewhat Disagree	2	7.4	7.7	15.4
	Neutral	3	11.1	11.5	26.9
	Somewhat Agree	9	33.3	34.6	61.5
	Strongly Agree	10	37.0	38.5	100.0
	Total	26	96.3	100.0	
Missing	System	1	3.7		
Total		27	100.0		

q1q Coursework: Solid electronics foundation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	2	7.4	7.7	7.7
	Neutral	3	11.1	11.5	19.2
	Somewhat Agree	7	25.9	26.9	46.2
	Strongly Agree	14	51.9	53.8	100.0
	Total	26	96.3	100.0	
Missing	System	1	3.7		
Total		27	100.0		

q1r Coursework: Understanding of digital/microprocessor electronics

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	2	7.4	7.7	7.7

	Somewhat Disagree	*1*	*3.7*	*3.8*	*11.5*
	Neutral	*3*	*11.1*	*11.5*	*23.1*
	Somewhat Agree	*8*	*29.6*	*30.8*	*53.8*
	Strongly Agree	*12*	*44.4*	*46.2*	*100.0*
	Total	*26*	*96.3*	*100.0*	
Missing	System	*1*	*3.7*		
Total		*27*	*100.0*		

q1s Coursework: Good programming skills

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	*2*	*7.4*	*7.7*	*7.7*
	Somewhat Disagree	*3*	*11.1*	*11.5*	*19.2*
	Neutral	*3*	*11.1*	*11.5*	*30.8*
	Somewhat Agree	*11*	*40.7*	*42.3*	*73.1*
	Strongly Agree	*7*	*25.9*	*26.9*	*100.0*
	Total	*26*	*96.3*	*100.0*	
Missing	System	*1*	*3.7*		
Total		*27*	*100.0*		

q1t Coursework: Good foundation in Control Systems used

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	*2*	*7.4*	*7.7*	*7.7*
	Somewhat Disagree	*2*	*7.4*	*7.7*	*15.4*
	Neutral	*5*	*18.5*	*19.2*	*34.6*
	Somewhat Agree	*8*	*29.6*	*30.8*	*65.4*
	Strongly Agree	*9*	*33.3*	*34.6*	*100.0*
	Total	*26*	*96.3*	*100.0*	
Missing	System	*1*	*3.7*		
Total		*27*	*100.0*		

q1u Experiences other than coursework were valuable

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	*4*	*14.8*	*15.4*	*15.4*
	Somewhat Disagree	*2*	*7.4*	*7.7*	*23.1*
	Neutral	*8*	*29.6*	*30.8*	*53.8*
	Somewhat Agree	*8*	*29.6*	*30.8*	*84.6*
	Strongly Agree	*4*	*14.8*	*15.4*	*100.0*
	Total	*26*	*96.3*	*100.0*	

Missing	System	*1*	*3.7*		
Total		*27*	*100.0*		

q1v Internship experience was an important aspect of my education

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	*5*	*18.5*	*19.2*	*19.2*
	Somewhat Disagree	*1*	*3.7*	*3.8*	*23.1*
	Neutral	*6*	*22.2*	*23.1*	*46.2*
	Somewhat Agree	*6*	*22.2*	*23.1*	*69.2*
	Strongly Agree	*8*	*29.6*	*30.8*	*100.0*
	Total	*26*	*96.3*	*100.0*	
Missing	System	*1*	*3.7*		
Total		*27*	*100.0*		

q1w My overall BSEET experience at FSU was satisfying

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	*2*	*7.4*	*7.7*	*7.7*
	Neutral	*2*	*7.4*	*7.7*	*15.4*
	Somewhat Agree	*10*	*37.0*	*38.5*	*53.8*
	Strongly Agree	*12*	*44.4*	*46.2*	*100.0*
	Total	*26*	*96.3*	*100.0*	
Missing	System	*1*	*3.7*		
Total		*27*	*100.0*		

q1x I would recommend the BSEET program to others

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	*2*	*7.4*	*7.7*	*7.7*
	Neutral	*3*	*11.1*	*11.5*	*19.2*
	Somewhat Agree	*10*	*37.0*	*38.5*	*57.7*
	Strongly Agree	*11*	*40.7*	*42.3*	*100.0*
	Total	*26*	*96.3*	*100.0*	
Missing	System	*1*	*3.7*		
Total		*27*	*100.0*		

q1y Interested in working to advance the BSEET program

	Frequency	Percent	Valid Percent	Cumulative Percent

Valid	Strongly Disagree	2	7.4	7.7	7.7
	Neutral	11	40.7	42.3	50.0
	Somewhat Agree	6	22.2	23.1	73.1
	Strongly Agree	7	25.9	26.9	100.0
	Total	26	96.3	100.0	
Missing	System	1	3.7		
Total		27	100.0		

q2 Overall business facility

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Manufacturing Plant	8	29.6	30.8	30.8
	OEM	3	11.1	11.5	42.3
	Administrative Office	2	7.4	7.7	50.0
	Sales Office/Distributor	1	3.7	3.8	53.8
	Engineering Firm	5	18.5	19.2	73.1
	Other	7	25.9	26.9	100.0
	Total	26	96.3	100.0	
Missing	System	1	3.7		
Total		27	100.0		

q2a Business facility specified

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		18	66.7	66.7	66.7
	Automotive Manufacturer	1	3.7	3.7	70.4
	Automotive Testing & Validation lab.	1	3.7	3.7	74.1
	Engineering/Business Services	1	3.7	3.7	77.8
	Have not been able to find a career in my degree field. I'm currently self-employed.	1	3.7	3.7	81.5
	I am now an ordained minister in the RCA.	1	3.7	3.7	85.2
	Office Furniture Manufacture to Automotive Glass Fabrication	1	3.7	3.7	88.9
	Power Company	1	3.7	3.7	92.6
	Product development a nd manufacturing	1	3.7	3.7	96.3
	Scientific Research	1	3.7	3.7	100.0
	Total	27	100.0	100.0	

q3 Product/service produced

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Construction of Production Equipment	2	7.4	7.7	7.7

	Sales/Distribution of Product	3	11.1	11.5	19.2
	Engineering of Product	5	18.5	19.2	38.5
	Engineering of Manufacturing Control Systems	5	18.5	19.2	57.7
	Engineering of Facilities	2	7.4	7.7	65.4
	Other	9	33.3	34.6	100.0
	Total	26	96.3	100.0	
Missing	System	1	3.7		
Total		27	100.0		

q3a Product/service specified

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		16	59.3	59.3	59.3
	Automobiles	2	7.4	7.4	66.7
	Automotive Glass Fabrication Plant for the OEM Market	1	3.7	3.7	70.4
	Combination of engineering, construction, sales, and distribution of product/facilities.	1	3.7	3.7	74.1
	Design and maintain Machine control equipment for Automotive production.	1	3.7	3.7	77.8
	Design and Manufacture of Assemble and Design to order products for the Electrical Distribution Grid.	1	3.7	3.7	81.5
	electricity	1	3.7	3.7	85.2
	I work at a Christian camp and retreat facility.	1	3.7	3.7	88.9
	IT systems and services.	1	3.7	3.7	92.6
	Robotic palletizing systems integrator	1	3.7	3.7	96.3
	Telecommunications Services	1	3.7	3.7	100.0
	Total	27	100.0	100.0	

q4 Primary work function

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	People Management	5	18.5	20.0	20.0
	Project Management	2	7.4	8.0	28.0
	Industrial Control System Integration	8	29.6	32.0	60.0
	Circuit/Network Design	1	3.7	4.0	64.0
	Consultant	2	7.4	8.0	72.0
	Other	7	25.9	28.0	100.0
	Total	25	92.6	100.0	
Missing	System	2	7.4		
Total		27	100.0		

q4a Work function specified

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		19	70.4	70.4	70.4
	Area Coordinator for Tempering Lines	1	3.7	3.7	74.1
	Facilities Engineering	1	3.7	3.7	77.8
	IP Network Planner	1	3.7	3.7	81.5
	Journeyman	1	3.7	3.7	85.2
	Manufacturing Plant Management	1	3.7	3.7	88.9
	Repair/Maintenance	1	3.7	3.7	92.6
	Service Planner	1	3.7	3.7	96.3
	Test technician, Data Aquistion	1	3.7	3.7	100.0
	Total	27	100.0	100.0	

q5 Currently taking classes for

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not taking classes	20	74.1	76.9	76.9
	Interest only	2	7.4	7.7	84.6
	Certification(s)	1	3.7	3.8	88.5
	Master's degree	3	11.1	11.5	100.0
	Total	26	96.3	100.0	
Missing	System	1	3.7		
Total		27	100.0		

q5a Classes specified

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		27	100.0	100.0	100.0

q6 Starting salary range at 1st BSEET related position

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than $30,000	9	33.3	36.0	36.0
	$30,000-$34,999	5	18.5	20.0	56.0
	$35,000-$39,999	5	18.5	20.0	76.0
	$40,000-$44,999	3	11.1	12.0	88.0
	$45,000-$49,999	2	7.4	8.0	96.0
	$50,000-$54,999	1	3.7	4.0	100.0
	Total	25	92.6	100.0	
Missing	System	2	7.4		
Total		27	100.0		

q7 Current salary range

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than $30,000	1	3.7	3.8	3.8
	$35,000-$39,999	3	11.1	11.5	15.4
	$45,000-$49,999	2	7.4	7.7	23.1
	$50,000-$54,999	3	11.1	11.5	34.6
	$55,000-$59,999	1	3.7	3.8	38.5
	$60,000-$64,999	1	3.7	3.8	42.3
	$65,000-$69,999	2	7.4	7.7	50.0
	$70,000 or more	13	48.1	50.0	100.0
	Total	26	96.3	100.0	
Missing	System	1	3.7		
Total		27	100.0		

q8 Comments

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		9	33.3	33.3	33.3

	After spending time in the industry it seems that if "design" is what you're after, then a BSEET is probably not adequate from the employer's perspective. For some reason it is not held to the same standard by employers as EE programs. I do not believe that it is a reflection of the university nor the quality of the educational content; it is simply the type of information presented in the BSEET program versus the EE program. The BSEET program at Ferris is very good. I learned a wealth of information about a variety of topics in the electrical engineering discipline and I feel that I was adequately prepared to succeed in industry. My advice would be to encourage Ferris to enlighten the students on the differences between the EET and EE education and what jobs they can expect to get after graduation. Other things that I would like to see included in the program are more simulation programs and software tools. Simulation is very large in the design industry and most companies use some type of software in the design process. PSPICE is used extensively along with programs such as MATLAB, Maple, and MathCad. More exposure to these types of tools should be included and the importance should be emphasized. Throughout my four years at Ferris, SPICE simulation was introduced but at a very low level. There are a variety of free windows based simulators out there right now such as Linear Technology's "Switcher CAD". It offers unlimited components and has many beneficial features that would enhance a students understanding of circuit design principles. I find that many students do not understand the benefits of circuit simulation because it was not emphasized enough. The hands on approach of "making calculations and then building" at Ferris is wonderful and is taken for granted at most engineering schools. This hands on skill set is a remarkable thing that many entry level engineering students do not posses. Taking the design approach one step further would be to integrate more simulation into the lecture and laboratory assignments. Also more options for electives would be beneficial. Soon after graduation I was considering completing graduate work in electrical engineering. After some research, I quickly realized how much coursework would be necessary to achieve the MSEE degree coming from a EET program. My math classes would not transfer into a typical three Calculus and Differential Equations sequence required at most engineering schools. It would be nice to include information about those types of requirements for students who may wish to further there education in a related engineering discipline. At the very least make these options well known and understood so that the student can make a decision that is best for them. As well the typical calculus sequence opens up other opportunities for other mathematical degrees including a minor, or applied mathematics degree available at Ferris and other institutions. Additionally, when it came time to take my EET related electives, I noticed that some of the courses were available on a "need basis" and were only offered if enough interest was shown. However, I did participate in independent studies for some of these courses. Although I learned valuable information, I feel that more could have been learned if I had taken the course in a traditional format. I have also done some research on other universities that offer the BSEET program such as Purdue University. They seem to have many more options for electives and tend to be less automation focused than Ferris does. The last point I would like to stress is that I would like to see Ferris offer a MSEET program focused more on the circuit design topics such as Analog/Digital and EMC related areas. The only university that I have found in Michigan to offer a MSEET program was Wayne State University. Additionally the program seemed to be focused on automation and indu strial topics. The other closest university that offers a MSEET program is Purdue which has coursework geared more towards the circuit design aspect. I truly think that there would be enough interest in this program to offer it. I would also like to stress that I feel that the education I received at Ferris was definitely adequate and I feel that the University has done a good job preparing students to be successful in industry. I only regret that the differences between the EE and EET programs were more clearly stated and that students were better informed so that they could make a decision that was best for them and there career goals.	*1*	*3.7*	*3.7*	*37.0*

	Control Systems and Integration work requires a much higher level of instrumentation design, I/O selection, and a variety of programming languages than what I was prepared for even as an entry level employee.	*1*	*3.7*	*3.7*	*40.7*
	Good entry level program with hands-on teaching...allowed me to hit the ground running... I am interested in pursuing a masters to enhance my options	*1*	*3.7*	*3.7*	*44.4*
	I believe the BSEET program helped prepare me for my current job. I would like to see the program go further by assisting graduates in obtaining a BSEE degree from an accredited university. There are more opportunities available at my company with the full BSEE degree.	*1*	*3.7*	*3.7*	*48.1*
	I have changed careers so this is difficult. Upon graduation, the experience I took from FSU was fine. Since a time as engineer at GM and Ford, I spent years in ministry.	*1*	*3.7*	*3.7*	*51.9*
	I have received great feedback from employers who have hired from the BSEET program.	*1*	*3.7*	*3.7*	*55.6*
	I was a transfer student, and part of the difficulty I had with the program was that the 2+2 program I had started changed the summer before I attended FSU. I was placed in classes that did not help me get to my career goal. Also, some of my instructors expected me to have a higher level understanding about certain topics and thus would not take the time to explain it to me. One instructor even told me that if I didn't have a very good understanding of the initial topic then I should be in a lower level class. As a result, I was forced to try to learn on my own and I did not do so well in class. As a suggestion for the program, I would listen to your students career goals better and find them a program that gets them to that goal, not try to fit them into a program and might work. If FSU doesn't have a program that will fit the students goals, then they should keep looking for a school that does have it. I started as a 2+2 student in a program that should have helped me obtain my career goal, but when the program got changed, I was placed in the "new" program without being told that the program had changed.	*1*	*3.7*	*3.7*	*59.3*
	I was very pleased with my FSU education and the preparation i received for using those skills in the real world. I worked for DEAN FOODS while attending FSU and upon graduation transferred to their corporate engineering where i advanced to the position of Midwest Regional Engineering Manager. Almost, 6 years ago I left DEAN FOODS, during company restructuring, and started my own systems integration firm. Since then we have added additional personnel and grown to over $6 million in sales this year. During that time i have contacted FSU BSEET personnel on a few occasions inquiring about possible interns. I have not heard back from anyone. I believe this would provide valuable experiences to them as well as allow me to give a little back to FSU. I have had two nephews work for me, both UofM engineering grads. One now works for Eli Lilly and the other SC Johnson. Both attribute their success to the early start and training they got from working for RWS.	*1*	*3.7*	*3.7*	*63.0*

	I was very satisfied with the BSEET program, it was a challenge for me. The only regret was that when I went to get my masters degree from RPI, I needed two math classes to qualify; Calc III and Differential Equations. Which I started 10 years after graduation. At the time, (1989)I probably would have avoided the higher math if given a choice. The other thing I remember is the old electronics equipment we were using...I'm sure you have upgraded. I also assume the program is more involved in finding and providing summer intern opportunities. In fact, there is the potential that I could help in this area.	*1*	*3.7*	*3.7*	*66.7*
	Improve on varible frequency drives I/O wiring and programming; more basic machine, motor, and control panel wiring plus rigid IMC and EMT conduit bending, more Visual Basic.Net, more basic hydrualic and pneumatics.	*1*	*3.7*	*3.7*	*70.4*
	More course work with AutoCAD and fluid power would have been helpful. Looks like that may be convered in the current course work. Broader range of PLC's, MMI's would be nice. RS500, RS5000, maybe some GE and Seimens. Different methods of programming (ladder, statement list, function block). More with NEC and NFPA79 also	*1*	*3.7*	*3.7*	*74.1*
	Most of the coursework provided a solid foundation in electronics, but from an industrial point of view, provided little in the way of preparing me for my career path as a controls engineer.	*1*	*3.7*	*3.7*	*77.8*
	Stengths: Class size Weaknesses: Antiquated technology	*1*	*3.7*	*3.7*	*81.5*
	The BSEET program opened many doors that my work experience would have never allowed. They both complimented each other and have helped me in many options. I have started a new plant from ground up, taken on QA role for Electrical Components for Office Furniture. Changed directions into Controls for Tempering Lines for Automotive Glass. I have utilized all of my knowlegde to have successful platform launches for new vehicles and now currently Area Coordinator for the Tempering lines, managing production associates, engineering and maintenance to meet customer expectations.	*1*	*3.7*	*3.7*	*85.2*
	The only comment i would have is to have more Controls classes for plc and a broad spectrum of plcs instead of just Allen Bradley.Maybe more project management as well to.	*1*	*3.7*	*3.7*	*88.9*
	The practical experience I gained from professors that have worked in industry was one of the most valuable things I took away from FSU. I was given credit for 1 year experience straight out of school due to that factor. We were taught real skills that translated directly to the outside world and employers recognized that.	*1*	*3.7*	*3.7*	*92.6*
	The program was geared more towards manufacturing given Michigan's economy circa 1992. I was on an ROTC scholarship and had to serve 4 years in the Signal Corps upon graduation. Fortunately, I got stationed at the US Army Electronic Proving Ground and was able to use my technical degree. The program should have a focus on telecommunications and networks. Wireless, IP, ethernet, etc. Some of the manufacturers such as Cisco and Juniper would likely donate lab hardware to Ferris.	*1*	*3.7*	*3.7*	*96.3*

	When I was taking the program in the early 1980s, there was no emphasis on Co-Op or Internship type work experience. I'm assuming this has changed over time but this is a critical area that should be emphasized.	*1*	*3.7*	*3.7*	*100.0*
	Total	*27*	*100.0*	*100.0*	

q9 Name

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		*3*	*11.1*	*11.1*	*11.1*
	----------	*1*	*3.7*	*3.7*	*14.8*
	----------	*1*	*3.7*	*3.7*	*18.5*
	----------	*1*	*3.7*	*3.7*	*22.2*
	----------	*1*	*3.7*	*3.7*	*25.9*
	----------	*1*	*3.7*	*3.7*	*29.6*
	----------	*1*	*3.7*	*3.7*	*33.3*
	----------	*1*	*3.7*	*3.7*	*37.0*
	----------	*1*	*3.7*	*3.7*	*40.7*
	----------	*1*	*3.7*	*3.7*	*44.4*
	----------	*1*	*3.7*	*3.7*	*48.1*
	----------	*1*	*3.7*	*3.7*	*51.9*
	----------	*1*	*3.7*	*3.7*	*55.6*
	----------	*1*	*3.7*	*3.7*	*59.3*
	----------	*1*	*3.7*	*3.7*	*63.0*
	----------	*1*	*3.7*	*3.7*	*66.7*
	----------	*1*	*3.7*	*3.7*	*70.4*
	----------	*1*	*3.7*	*3.7*	*74.1*
	----------	*1*	*3.7*	*3.7*	*77.8*
	----------	*1*	*3.7*	*3.7*	*81.5*
	----------	*1*	*3.7*	*3.7*	*85.2*
	----------	*1*	*3.7*	*3.7*	*88.9*
	----------	*1*	*3.7*	*3.7*	*92.6*
	----------	*1*	*3.7*	*3.7*	*96.3*
	----------	*1*	*3.7*	*3.7*	*100.0*
	Total	*27*	*100.0*	*100.0*	

q10 Home address

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		*7*	*25.9*	*25.9*	*25.9*
	----------	*1*	*3.7*	*3.7*	*29.6*
	----------	*1*	*3.7*	*3.7*	*33.3*

	----------	1	3.7	3.7	37.0
	----------	1	3.7	3.7	40.7
	----------	1	3.7	3.7	44.4
	----------	1	3.7	3.7	48.1
	----------	1	3.7	3.7	51.9
	----------	1	3.7	3.7	55.6
	----------	1	3.7	3.7	59.3
	----------	1	3.7	3.7	63.0
	----------	1	3.7	3.7	66.7
	----------	1	3.7	3.7	70.4
	----------	1	3.7	3.7	74.1
	----------	1	3.7	3.7	77.8
	----------	1	3.7	3.7	81.5
	----------	1	3.7	3.7	85.2
	----------	1	3.7	3.7	88.9
	----------	1	3.7	3.7	92.6
	----------	1	3.7	3.7	96.3
	----------	1	3.7	3.7	100.0
	Total	27	100.0	100.0	

q11 Home phone

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		9	33.3	33.3	33.3
	----------	1	3.7	3.7	37.0
	----------	1	3.7	3.7	40.7
	----------	1	3.7	3.7	44.4
	----------	1	3.7	3.7	48.1
	----------	1	3.7	3.7	51.9
	----------	1	3.7	3.7	55.6
	----------	1	3.7	3.7	59.3
	----------	1	3.7	3.7	63.0
	----------	1	3.7	3.7	66.7
	----------	1	3.7	3.7	70.4
	----------	1	3.7	3.7	74.1
	----------	1	3.7	3.7	77.8
	----------	1	3.7	3.7	81.5
	----------	1	3.7	3.7	85.2
	----------	1	3.7	3.7	88.9
	----------	1	3.7	3.7	92.6
	----------	1	3.7	3.7	96.3
	----------	1	3.7	3.7	100.0
	Total	27	100.0	100.0	

q12 Personal e-mail

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		9	33.3	33.3	33.3
	----------	1	3.7	3.7	37.0
	----------	1	3.7	3.7	40.7
	----------	1	3.7	3.7	44.4
	----------	1	3.7	3.7	48.1
	----------	1	3.7	3.7	51.9
	----------	1	3.7	3.7	55.6
	----------	1	3.7	3.7	59.3
	----------	1	3.7	3.7	63.0
	----------	1	3.7	3.7	66.7
	----------	1	3.7	3.7	70.4
	----------	1	3.7	3.7	74.1
	----------	1	3.7	3.7	77.8
	----------	1	3.7	3.7	81.5
	----------	1	3.7	3.7	85.2
	----------	1	3.7	3.7	88.9
	----------	1	3.7	3.7	92.6
	----------	1	3.7	3.7	96.3
	----------	1	3.7	3.7	100.0
	Total	27	100.0	100.0	

q13 Degrees/Year/School

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		6	22.2	22.2	22.2
	1985 AAS Industrial Electronics FSU 1987 BSEET Electrical/Electronics Engineering Technology FSU	1	3.7	3.7	25.9
	AAS 83 FSU BSEET 86 FSU	1	3.7	3.7	29.6
	AASEET 1991 Jackson Community College BSEET 1997 FSU	1	3.7	3.7	33.3
	Associates Degree:Industrial Automation - 1993 - Montcalm Community College BS Degree: EET - 1995 - FSU	1	3.7	3.7	37.0
	Associates in Applied Science (Electronics Technology)/2000/Lansing Community College BSEET/2002/Ferris State University	1	3.7	3.7	40.7
	BEET from Ferris 91T	1	3.7	3.7	44.4
	BS EET - 1986 - FSU MSEM - 1999 - Milwaukee School of Engineering	1	3.7	3.7	48.1
	BSEEET/2000/Ferris State University	1	3.7	3.7	51.9
	BSEET-4 Year MBA Engineering Management-2 Years	1	3.7	3.7	55.6
	BSEET / 1991 / Ferris State University	1	3.7	3.7	59.3
	BSEET 1991 Ferris	1	3.7	3.7	63.0

	BSEET 2007 Ferris State	1	3.7	3.7	66.7
	BSEET/1993/Ferris Minor in CS	1	3.7	3.7	70.4
	BSEET/1994/FSU	1	3.7	3.7	74.1
	BSEET/1995/Ferris State University EMBA/2001/University of Wisconsin	1	3.7	3.7	77.8
	BSEET/1995/FSU	1	3.7	3.7	81.5
	BSEET/1996/Ferris State University	1	3.7	3.7	85.2
	BSEET/1996/FSU	1	3.7	3.7	88.9
	BSEET/2004/Ferris State University	1	3.7	3.7	92.6
	Delta College 1986 FSU 1990 RPI 2004	1	3.7	3.7	96.3
	Masters of Divinity/1998/Western Theo Seminary	1	3.7	3.7	100.0
	Total	27	100.0	100.0	

q14 Company name

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		3	11.1	11.1	11.1
	Aidco International, Inc	1	3.7	3.7	14.8
	All Tech Engineering	1	3.7	3.7	18.5
	Bekum Of America Corp.	1	3.7	3.7	22.2
	Consumers Energy	1	3.7	3.7	25.9
	Cooper Power Systems	1	3.7	3.7	29.6
	Cran-Hill Ranch Camp & Retreat Center	1	3.7	3.7	33.3
	Delphi Steering	1	3.7	3.7	37.0
	Delphi Steering Systems	1	3.7	3.7	40.7
	Dow Corning Corporation	1	3.7	3.7	44.4
	Duke Energy	1	3.7	3.7	48.1
	EDS	1	3.7	3.7	51.9
	General Motors	1	3.7	3.7	55.6
	General Motors Corp. (Lake Orion Assebly Center)	1	3.7	3.7	59.3
	General Motors Lansing Grand River Plant	1	3.7	3.7	63.0
	Gentex Corporation	1	3.7	3.7	66.7
	GM	1	3.7	3.7	70.4
	Mor Electric Heating Assoc., Inc.	1	3.7	3.7	74.1
	Perceptive Controls (may be moving to a diffrent firm) This will change.	1	3.7	3.7	77.8
	PPG Industries, Inc	1	3.7	3.7	81.5
	Raytheon Polar Services Company	1	3.7	3.7	85.2
	RWS Design and Controls, Inc.	1	3.7	3.7	88.9
	The Pampered Chef - Independent Consultant	1	3.7	3.7	92.6
	Verizon	1	3.7	3.7	96.3
	Warner Software Company	1	3.7	3.7	100.0
	Total	27	100.0	100.0	

q15 Company address

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		4	14.8	14.8	14.8
	(see home address above)	1	3.7	3.7	18.5
	1030 58th Street, S.W.	1	3.7	3.7	22.2
	1140 W. Grand River Williamston MI 48895	1	3.7	3.7	25.9
	14444 17 Mile Rd. Rodney, MI 49342	1	3.7	3.7	29.6
	2800 9th Avenue South Milwaukee WI, 53172	1	3.7	3.7	33.3
	3300 General Motors Rd. Milford, MI. 48380	1	3.7	3.7	37.0
	3881 Yorkland Dr. NW Apt. 8 Comstock Park, MI 49321	1	3.7	3.7	40.7
	3900 Holland Road Saginaw, MI 48601 Mail code: Plant 7	1	3.7	3.7	44.4
	3901 S. Saginaw Road Midland, MI 48626	1	3.7	3.7	48.1
	4320 Spring Creek Road Rockford, Illinois 61107	1	3.7	3.7	51.9
	4555 Gidding Rd Lake Orion Mich 48359	1	3.7	3.7	55.6
	5880 Alpine Ave. NW Comstock Park, MI 49321	1	3.7	3.7	59.3
	600 N. Centennial St Zeeland, MI 49464	1	3.7	3.7	63.0
	6251 South Lauman Rd Evart MI, 49631	1	3.7	3.7	66.7
	751 S. Center Street Adrian, MI 49221	1	3.7	3.7	70.4
	951 Industrial Pky	1	3.7	3.7	74.1
	Centennial, CO	1	3.7	3.7	77.8
	489-LGR-100 920 Townsend Street Lansing, MI 48921	1	3.7	3.7	81.5
	Milford Proving Ground	1	3.7	3.7	85.2
	One Energy Plaza Jackson, MI 49201	1	3.7	3.7	88.9
	Pontiac, MI	1	3.7	3.7	92.6
	Richardson, TX	1	3.7	3.7	96.3
	Saginaw, Michigan	1	3.7	3.7	100.0
	Total	27	100.0	100.0	

q16 Your title

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		5	18.5	18.5	18.5
	Advanced Technologies and Ventures Information Delivery Leader	1	3.7	3.7	22.2
	Area Coordinator - HE - Tempering	1	3.7	3.7	25.9
	Automation Software Technologist/Owner	1	3.7	3.7	29.6
	Controls Engineer	1	3.7	3.7	33.3
	Director of Facilities & Maintenance	1	3.7	3.7	37.0
	Electrical Controls Technician	1	3.7	3.7	40.7
	Electrical Engineering Supervisor	1	3.7	3.7	44.4
	EMC Simulation Engineer	1	3.7	3.7	48.1
	Engineering Associate	1	3.7	3.7	51.9
	General Technical Analyst	1	3.7	3.7	55.6
	Global Manufacturing Execution Systems Deployment Manager	1	3.7	3.7	59.3

	Independent Sales Consultant	*1*	*3.7*	*3.7*	*63.0*
	Plant Manager	*1*	*3.7*	*3.7*	*66.7*
	President	*1*	*3.7*	*3.7*	*70.4*
	Preventive Maintenance Foreman	*1*	*3.7*	*3.7*	*74.1*
	Project Engineer	*1*	*3.7*	*3.7*	*77.8*
	Sr. Controls Engineer	*1*	*3.7*	*3.7*	*81.5*
	Sr. Manufacturing Engineer	*1*	*3.7*	*3.7*	*85.2*
	Sr. Plant Engineer	*1*	*3.7*	*3.7*	*88.9*
	Systems Engineer	*1*	*3.7*	*3.7*	*92.6*
	Vehicle Update Coordinator	*1*	*3.7*	*3.7*	*96.3*
	Vice President (Owner)	*1*	*3.7*	*3.7*	*100.0*
	Total	*27*	*100.0*	*100.0*	

q17 FSU Degree & Year graduated from FSU

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		*4*	*14.8*	*14.8*	*14.8*
	2005	*1*	*3.7*	*3.7*	*18.5*
	Above	*1*	*3.7*	*3.7*	*22.2*
	BEET , 1991	*1*	*3.7*	*3.7*	*25.9*
	BS 1987	*1*	*3.7*	*3.7*	*29.6*
	BSEEET/2000/Ferris State University	*1*	*3.7*	*3.7*	*33.3*
	BSEET - 1986	*1*	*3.7*	*3.7*	*37.0*
	BSEET - 2004	*1*	*3.7*	*3.7*	*40.7*
	BSEET / 1991	*1*	*3.7*	*3.7*	*44.4*
	BSEET 1986	*1*	*3.7*	*3.7*	*48.1*
	BSEET 1990	*1*	*3.7*	*3.7*	*51.9*
	BSEET 1991	*1*	*3.7*	*3.7*	*55.6*
	BSEET 1992	*1*	*3.7*	*3.7*	*59.3*
	BSEET 1995	*2*	*7.4*	*7.4*	*66.7*
	BSEET 1996	*1*	*3.7*	*3.7*	*70.4*
	BSEET 1997	*1*	*3.7*	*3.7*	*74.1*
	BSEET 2007	*2*	*7.4*	*7.4*	*81.5*
	BSEET/1989	*1*	*3.7*	*3.7*	*85.2*
	BSEET/1994	*1*	*3.7*	*3.7*	*88.9*
	BSEET/1995	*1*	*3.7*	*3.7*	*92.6*
	BSEET/1996	*1*	*3.7*	*3.7*	*96.3*
	BSEET/2002	*1*	*3.7*	*3.7*	*100.0*
	Total	*27*	*100.0*	*100.0*	

q18 Work phone

	Frequency	Percent	Valid Percent	Cumulative Percent

		10	*37.0*	*37.0*	*37.0*
	(517)885-7171	*1*	*3.7*	*3.7*	*40.7*
	(616)772-1800	*1*	*3.7*	*3.7*	*44.4*
	231.734.9503	*1*	*3.7*	*3.7*	*48.1*
	231.796.2247	*1*	*3.7*	*3.7*	*51.9*
	248-475-3862	*1*	*3.7*	*3.7*	*55.6*
	248-685-4514	*1*	*3.7*	*3.7*	*59.3*
	414 768 8231	*1*	*3.7*	*3.7*	*63.0*
	517-788-2948	*1*	*3.7*	*3.7*	*66.7*
Valid	517-930-5311	*1*	*3.7*	*3.7*	*70.4*
	517 655-7154	*1*	*3.7*	*3.7*	*74.1*
	616-284-0019	*1*	*3.7*	*3.7*	*77.8*
	616-406-0681	*1*	*3.7*	*3.7*	*81.5*
	616-784-1121	*1*	*3.7*	*3.7*	*85.2*
	8153162870	*1*	*3.7*	*3.7*	*88.9*
	989-496-4707	*1*	*3.7*	*3.7*	*92.6*
	989-757-3803	*1*	*3.7*	*3.7*	*96.3*
	989 757 5784	*1*	*3.7*	*3.7*	*100.0*
	Total	*27*	*100.0*	*100.0*	

q19 Work fax

		Frequency	Percent	Valid Percent	Cumulative Percent
		21	*77.8*	*77.8*	*77.8*
	(517)885-7199	*1*	*3.7*	*3.7*	*81.5*
	231-734-9597	*1*	*3.7*	*3.7*	*85.2*
Valid	517-641-4522	*1*	*3.7*	*3.7*	*88.9*
	517-788-5884	*1*	*3.7*	*3.7*	*92.6*
	616-406-0690	*1*	*3.7*	*3.7*	*96.3*
	8153162873	*1*	*3.7*	*3.7*	*100.0*
	Total	*27*	*100.0*	*100.0*	

q20 Work e-mail

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		*8*	*29.6*	*29.6*	*29.6*
	david.koepf@eds.com	*1*	*3.7*	*3.7*	*33.3*
	david.westfall@gm.com	*1*	*3.7*	*3.7*	*37.0*
	edisonwirth@rwscontrols.com	*1*	*3.7*	*3.7*	*40.7*
	Eric.G.Smith@gm.com	*1*	*3.7*	*3.7*	*44.4*
	james.travis@usap.gov	*1*	*3.7*	*3.7*	*48.1*
	jay@morelectric.com	*1*	*3.7*	*3.7*	*51.9*
	jiwarner@i2k.com	*1*	*3.7*	*3.7*	*55.6*

	john.danks@delphi.com	*1*	*3.7*	*3.7*	*59.3*
	karendsen@alltech-eng.com	*1*	*3.7*	*3.7*	*63.0*
	kevin.talbot@gm.com	*1*	*3.7*	*3.7*	*66.7*
	kirk.fabbri@gentex.com	*1*	*3.7*	*3.7*	*70.4*
	kmyers@bekumamerica.com	*1*	*3.7*	*3.7*	*74.1*
	melissafall.pchef@gmail.com	*1*	*3.7*	*3.7*	*77.8*
	patrick.seibert@gm.com	*1*	*3.7*	*3.7*	*81.5*
	rblair@ppg.com	*1*	*3.7*	*3.7*	*85.2*
	rgrailling@cmsenergy.com	*1*	*3.7*	*3.7*	*88.9*
	rls@aidcoint.com	*1*	*3.7*	*3.7*	*92.6*
	rod.longstreet@cooperindustries.com	*1*	*3.7*	*3.7*	*96.3*
	steve.bannister@delphi.com	*1*	*3.7*	*3.7*	*100.0*
	Total	*27*	*100.0*	*100.0*	

Industrial Electronics Technology Survey

CNS/EET Dept APR...IET Alumni

Frequencies

Prepared by: Institutional Research & Testing, 02/08

Statistics

	N		Mean	Median	Std. Deviation
	Valid	Missing	Valid	Missing	Valid
q1a I: Perform well overall compared to grads from other univs	23	1	4.30	4.00	.765
q1b I: Able to use written & oral skills effectively	24	0	4.67	5.00	.565
q1c I: Dev'd good crit think, prob solving & decision-making skills	24	0	4.79	5.00	.415
q1d I: Strong technical understanding	24	0	4.75	5.00	.532
q1e I: Apply technical theory to practical situations	24	0	4.50	5.00	.885
q1f I: Adequate mathematical skills	24	0	4.25	4.50	.897
q1g I: Self-motivated & enthusiastic	24	0	4.67	5.00	.482
q1h I: Ready & able to assume responsibility	24	0	4.79	5.00	.415
q1i I: Plan effective use of available resources	24	0	4.67	5.00	.482
q1j I: Participate as part of a team	24	0	4.71	5.00	.464
q1k I: Work well with indiv's from diverse backgrounds	24	0	4.42	4.50	.654
q1l I: Good ethical values	24	0	4.71	5.00	.464
q1m Courses good mix of subjects for my career options	24	0	4.08	4.00	.881
q1n Courses challenged me intellectually	24	0	4.38	4.50	.770
q1o Courses motivated me to a higher level of performance	24	0	4.08	4.00	.776
q1p Overall IET prog dev'd my ability to reason/solve problems	22	2	3.91	4.00	1.065
q1q Coursework: Solid electronics foundation	24	0	4.63	5.00	.576
q1r Coursework: Understanding of digital/microprocessor electronics	24	0	4.13	4.00	.850
q1s Coursework: Good programming skills	24	0	3.21	3.00	1.021
q1t Coursework: Good foundation in Control Systems used	23	1	3.91	4.00	.949
q1u Experiences other than coursework were valuable	24	0	3.33	3.00	1.167
q1v Internship experience was an important aspect of my education	24	0	4.42	4.00	.584
q1w My overall IET experience at FSU was satisfying	23	1	4.39	4.00	.656
q1x I would recommend the IET program to others	24	0	3.13	3.00	1.393
q2 Overall business facility	24	0	5.42	6.50	3.425
q2a Business facility specified	24	0			
q3 Product/service produced	22	2	6.23	8.00	2.389
q3a Product/service specified	24	0			
q4 Primary work function	24	0	5.46	6.00	3.162
q4a Work function specified	24	0			
q5 Currently taking classes for	24	0	1.88	1.00	1.825
q5a Classes specified	24	0			
q6 Starting salary range at my 1st IET related position	22	2	2.50	2.00	2.263
q7 Current salary range	24	0	9.21	10.00	1.444
q8 Comments	24	0			
q9 Name	24	0			

q10 Home address	*24*	*0*			
q11 Home phone	*24*	*0*			
q12 Personal e-mail	*24*	*0*			
q13 Degrees/Year/School	*24*	*0*			
q14 Company name	*24*	*0*			
q15 Company address	*24*	*0*			
q16 Your title	*24*	*0*			
q17 FSU Degree & Year graduated from FSU	*24*	*0*			
q18 Work phone	*24*	*0*			
q19 Work fax	*24*	*0*			
q20 Work e-mail	*24*	*0*			

Frequency Table

q1a I: Perform well overall compared to grads from other univs

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neutral	*4*	*16.7*	*17.4*	*17.4*
	Somewhat Agree	*8*	*33.3*	*34.8*	*52.2*
	Strongly Agree	*11*	*45.8*	*47.8*	*100.0*
	Total	*23*	*95.8*	*100.0*	
Missing	System	*1*	*4.2*		
Total		*24*	*100.0*		

q1b I: Able to use written & oral skills effectively

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neutral	*1*	*4.2*	*4.2*	*4.2*
	Somewhat Agree	*6*	*25.0*	*25.0*	*29.2*
	Strongly Agree	*17*	*70.8*	*70.8*	*100.0*
	Total	*24*	*100.0*	*100.0*	

q1c I: Dev'd good crit think, prob solving & decision-making skills

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Agree	*5*	*20.8*	*20.8*	*20.8*
	Strongly Agree	*19*	*79.2*	*79.2*	*100.0*
	Total	*24*	*100.0*	*100.0*	

q1d I: Strong technical understanding

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neutral	1	4.2	4.2	4.2
	Somewhat Agree	4	16.7	16.7	20.8
	Strongly Agree	19	79.2	79.2	100.0
	Total	24	100.0	100.0	

q1e I: Apply technical theory to practical situations

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	4.2	4.2	4.2
	Somewhat Agree	8	33.3	33.3	37.5
	Strongly Agree	15	62.5	62.5	100.0
	Total	24	100.0	100.0	

q1f I: Adequate mathematical skills

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Disagree	1	4.2	4.2	4.2
	Neutral	4	16.7	16.7	20.8
	Somewhat Agree	7	29.2	29.2	50.0
	Strongly Agree	12	50.0	50.0	100.0
	Total	24	100.0	100.0	

q1g I: Self-motivated & enthusiastic

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Agree	8	33.3	33.3	33.3
	Strongly Agree	16	66.7	66.7	100.0
	Total	24	100.0	100.0	

q1h I: Ready & able to assume responsibility

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Agree	5	20.8	20.8	20.8
	Strongly Agree	19	79.2	79.2	100.0
	Total	24	100.0	100.0	

q1i I: Plan effective use of available resources

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Agree	8	33.3	33.3	33.3
	Strongly Agree	16	66.7	66.7	100.0
	Total	24	100.0	100.0	

q1j I: Participate as part of a team

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Agree	7	29.2	29.2	29.2
	Strongly Agree	17	70.8	70.8	100.0
	Total	24	100.0	100.0	

q1k I: Work well with indiv's from diverse backgrounds

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neutral	2	8.3	8.3	8.3
	Somewhat Agree	10	41.7	41.7	50.0
	Strongly Agree	12	50.0	50.0	100.0
	Total	24	100.0	100.0	

q1l I: Good ethical values

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Agree	7	29.2	29.2	29.2
	Strongly Agree	17	70.8	70.8	100.0
	Total	24	100.0	100.0	

q1m Courses good mix of subjects for my career options

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Disagree	1	4.2	4.2	4.2
	Neutral	5	20.8	20.8	25.0
	Somewhat Agree	9	37.5	37.5	62.5
	Strongly Agree	9	37.5	37.5	100.0
	Total	24	100.0	100.0	

q1n Courses challenged me intellectually

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Disagree	1	4.2	4.2	4.2
	Neutral	1	4.2	4.2	8.3
	Somewhat Agree	10	41.7	41.7	50.0
	Strongly Agree	12	50.0	50.0	100.0
	Total	24	100.0	100.0	

q1o Courses motivated me to a higher level of performance

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Disagree	1	4.2	4.2	4.2
	Neutral	3	12.5	12.5	16.7
	Somewhat Agree	13	54.2	54.2	70.8
	Strongly Agree	7	29.2	29.2	100.0
	Total	24	100.0	100.0	

q1p Overall IET prog dev'd my ability to reason/solve problems

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	4.2	4.5	4.5
	Somewhat Disagree	1	4.2	4.5	9.1
	Neutral	4	16.7	18.2	27.3
	Somewhat Agree	9	37.5	40.9	68.2
	Strongly Agree	7	29.2	31.8	100.0
	Total	22	91.7	100.0	
Missing	System	2	8.3		
Total		24	100.0		

q1q Coursework: Solid electronics foundation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neutral	1	4.2	4.2	4.2
	Somewhat Agree	7	29.2	29.2	33.3
	Strongly Agree	16	66.7	66.7	100.0
	Total	24	100.0	100.0	

q1r Coursework: Understanding of digital/microprocessor electronics

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Disagree	1	4.2	4.2	4.2
	Neutral	4	16.7	16.7	20.8
	Somewhat Agree	10	41.7	41.7	62.5
	Strongly Agree	9	37.5	37.5	100.0
	Total	24	100.0	100.0	

q1s Coursework: Good programming skills

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	4.2	4.2	4.2
	Somewhat Disagree	4	16.7	16.7	20.8
	Neutral	11	45.8	45.8	66.7
	Somewhat Agree	5	20.8	20.8	87.5
	Strongly Agree	3	12.5	12.5	100.0
	Total	24	100.0	100.0	

q1t Coursework: Good foundation in Control Systems used

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Disagree	2	8.3	8.7	8.7
	Neutral	5	20.8	21.7	30.4
	Somewhat Agree	9	37.5	39.1	69.6
	Strongly Agree	7	29.2	30.4	100.0
	Total	23	95.8	100.0	
Missing	System	1	4.2		
Total		24	100.0		

q1u Experiences other than coursework were valuable

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	4.2	4.2	4.2
	Somewhat Disagree	5	20.8	20.8	25.0
	Neutral	8	33.3	33.3	58.3
	Somewhat Agree	5	20.8	20.8	79.2
	Strongly Agree	5	20.8	20.8	100.0
	Total	24	100.0	100.0	

q1v Internship experience was an important aspect of my education

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neutral	1	4.2	4.2	4.2
	Somewhat Agree	12	50.0	50.0	54.2
	Strongly Agree	11	45.8	45.8	100.0
	Total	24	100.0	100.0	

q1w My overall IET experience at FSU was satisfying

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neutral	2	8.3	8.7	8.7
	Somewhat Agree	10	41.7	43.5	52.2
	Strongly Agree	11	45.8	47.8	100.0
	Total	23	95.8	100.0	
Missing	System	1	4.2		
Total		24	100.0		

q1x I would recommend the IET program to others

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	4	16.7	16.7	16.7
	Somewhat Disagree	4	16.7	16.7	33.3
	Neutral	6	25.0	25.0	58.3
	Somewhat Agree	5	20.8	20.8	79.2
	Strongly Agree	5	20.8	20.8	100.0
	Total	24	100.0	100.0	

q2 Overall business facility

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Manufacturing Plant	7	29.2	29.2	29.2
	Administrative Office	1	4.2	4.2	33.3
	R&D Lab	3	12.5	12.5	45.8
	Sales Office/Distributor	1	4.2	4.2	50.0
	Field Service Center	2	8.3	8.3	58.3
	Engineering Firm	2	8.3	8.3	66.7
	Other	8	33.3	33.3	100.0
	Total	24	100.0	100.0	

q2a Business facility specified

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		13	54.2	54.2	54.2
	Chrysler LLC	1	4.2	4.2	58.3
	Cusgtomer Support Center	1	4.2	4.2	62.5
	Eastman Kodak Company, Advanced Systems	1	4.2	4.2	66.7
	Education	1	4.2	4.2	70.8
	Energy Company and / Product Development	1	4.2	4.2	75.0
	Ford Motor Company, Vehicle Operations, Body Construction Engineering, Controls and Standards.	1	4.2	4.2	79.2
	I work out of my house as a siding contractor.	1	4.2	4.2	83.3
	Lean Consultant	1	4.2	4.2	87.5
	Outsourcing Supplier for Information Technology	1	4.2	4.2	91.7
	Power Generation	1	4.2	4.2	95.8
	Sales	1	4.2	4.2	100.0
	Total	24	100.0	100.0	

q3 Product/service produced

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Sales/Distribution of Product	3	12.5	13.6	13.6
	Engineering of Product	2	8.3	9.1	22.7
	Engineering of Manufacturing Control Systems	1	4.2	4.5	27.3
	Engineering of Facilities	1	4.2	4.5	31.8
	Contract Maintenance	1	4.2	4.5	36.4
	Contract Engineering	2	8.3	9.1	45.5
	Other	12	50.0	54.5	100.0
	Total	22	91.7	100.0	
Missing	System	2	8.3		
Total		24	100.0		

q3a Product/service specified

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		10	41.7	41.7	41.7
	Automotive manufacturing	1	4.2	4.2	45.8
	Computer and Storage Sales	1	4.2	4.2	50.0
	Computer Support	1	4.2	4.2	54.2
	Design, development, and certification of public automotive transportation vehicles.	1	4.2	4.2	58.3
	Developed and then manufactured Photographic equipment	1	4.2	4.2	62.5
	Electric Power and Process Steam	1	4.2	4.2	66.7
	Electrical Power/ Energy Company	1	4.2	4.2	70.8

	Facility Operating of a chemical process	1	4.2	4.2	75.0
	Installation of systems	1	4.2	4.2	79.2
	Management Consulting Services	1	4.2	4.2	83.3
	Not in a related field.	1	4.2	4.2	87.5
	Remote support of our customers devices	1	4.2	4.2	91.7
	research and manufacture of chemicals	1	4.2	4.2	95.8
	Tier 1 OEM Automotive Electronics supplier	1	4.2	4.2	100.0
	Total	24	100.0	100.0	

q4 Primary work function

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	People Management	3	12.5	12.5	12.5
	Project Management	5	20.8	20.8	33.3
	Industrial Control System Integration	2	8.3	8.3	41.7
	Circuit/Network Design	1	4.2	4.2	45.8
	Computer System/Network Design	2	8.3	8.3	54.2
	Sales	2	8.3	8.3	62.5
	Consultant	2	8.3	8.3	70.8
	Other	7	29.2	29.2	100.0
	Total	24	100.0	100.0	

q4a Work function specified

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		17	70.8	70.8	70.8
	chemical and materials analytical testing	1	4.2	4.2	75.0
	Eng Technician/Product Development Engineer/ Supervisor	1	4.2	4.2	79.2
	Field Service Engineer	1	4.2	4.2	83.3
	R&D Engineering Manager	1	4.2	4.2	87.5
	Sales and construction work.	1	4.2	4.2	91.7
	Sales Operations/Deal Approval	1	4.2	4.2	95.8
	Technical Advisor	1	4.2	4.2	100.0
	Total	24	100.0	100.0	

q5 Currently taking classes for

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not taking classes	19	79.2	79.2	79.2
	Certification(s)	1	4.2	4.2	83.3
	Master's degree	1	4.2	4.2	87.5

	Other	3	12.5	12.5	100.0
	Total	24	100.0	100.0	

q5a Classes specified

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		21	87.5	87.5	87.5
	Full Financial Services Provider	1	4.2	4.2	91.7
	Graduate BSET,MBA	1	4.2	4.2	95.8
	Professional Development	1	4.2	4.2	100.0
	Total	24	100.0	100.0	

q6 Starting salary range at my 1st IET related position

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than $20,000	10	41.7	45.5	45.5
	$20,000-$24,999	5	20.8	22.7	68.2
	$25,000-$29,999	2	8.3	9.1	77.3
	$30,000-$34,999	3	12.5	13.6	90.9
	$45,000-$49,999	1	4.2	4.5	95.5
	$60,000 or more	1	4.2	4.5	100.0
	Total	22	91.7	100.0	
Missing	System	2	8.3		
Total		24	100.0		

q7 Current salary range

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	$40,000-$44,999	3	12.5	12.5	12.5
	$45,000-$49,999	1	4.2	4.2	16.7
	$50,000-$54,999	1	4.2	4.2	20.8
	$55,000-$59,999	2	8.3	8.3	29.2
	$60,000 or more	17	70.8	70.8	100.0
	Total	24	100.0	100.0	

q8 Comments

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		7	29.2	29.2	29.2
	Add some process control	1	4.2	4.2	33.3

	After getting my IET A.A.S. degree, I changed majors and obtained a Plastics Degree (A.A.S) and Production Management Degree (B.S.). I found that Electronics was not my "bag"...	*1*	*4.2*	*4.2*	*37.5*
	After I graduated in 1975 I went into the NAVY for 6 years and was an Electronics Technician (Radar) and was honorably discharged in 1981. I then worked for Eastman Kodak as an Electronics Tech. in R&D for the Advanced Systems Dept. I was layed off in 1993 and couldn't find re-employment so I went back to school and have been a PTA since 1995. I don't think I could offer much relevant information since I've been out of the field too long. The information I have provided is from when I was still working for Eastman Kodak Company prior to 1993.	*1*	*4.2*	*4.2*	*41.7*
	At the time I completed the program it was fairly new. Programming, microprocessors, and PLC's were not yet mainstream so we just touched on the priniples involved. A few years later I encountered them in my work and had no problems quickly becoming proficient in their programming and use.	*1*	*4.2*	*4.2*	*45.8*
	At the time I graduated I didn't have the confidence needed and wound up in a different field.	*1*	*4.2*	*4.2*	*50.0*
	Excellent framework for work in Engineering. Went straight to Medical Field with IET framework in Biomedical equipment. Got into Computers and Integration after that.	*1*	*4.2*	*4.2*	*54.2*
	Good basic training on priciples and practices	*1*	*4.2*	*4.2*	*58.3*
	I graduated in 1976, and today the world is different. That said basic electronics are understood by very few people today that call themselves 'technicians'. Component level troubleshooting using basic theory is almost a lost art, and yet the ability to understand and fix things has helped me over the years.	*1*	*4.2*	*4.2*	*62.5*
	I learned from Glen Krabec in 1970 when miroprocessors did not exist yet. My training was good for the technology at the time. My career suffered because of the lack of calculus however.	*1*	*4.2*	*4.2*	*66.7*
	I was in the IET program in 1974 and 1975. I'm sure it is much different now than it was then. Digital electronics & microproccessors were very new then. The program didn't include any microprocessor or programming topics, but we did have a couple labs about vacuum tubes. I was well prepared technically when I started my first job in 1975, and when I started working on my Bachelor's degree in electronics at Saginaw Valley in 1980. I was not as well prepared for the math skills required by that program, however. One elective class that I took has been particularly useful-Technical Report Writing. Written (and verbal) communications skills are a big requirement in today's careers. Poor communications skills will hinder career advancement in most companies.	*1*	*4.2*	*4.2*	*70.8*
	It gave me the theory and knowledge to do a few things in the field. Most things I was trained on when I recieved my first job. IET was an overview of many different industries that use technologies, but didn't prepare for any one of them. Jobs typically just want you to have a background and they will teach you the needed information per the job.	*1*	*4.2*	*4.2*	*75.0*

	It has been 27 years, but from what I recall FSC provided a good foundation in the fundamentals of electronics. Dr. Robert Martin pushed me into going into engineering because he saw my potential. Alot of the qualities mentioned in Q1 above were not a result of what the IET program provided me, but what I possessed as a result of my upbringing and personal development. I never really worked as a technician because I went on to obtain a BSEEE - finally. Finally, because I was drafted into the U.S. Army during my first semester at U-of-M-Dearborn, so my education took a slight detour and delay.	*1*	*4.2*	*4.2*	*79.2*
	My graduation was 30 years ago so there is most likely many changes. If the program prepares the student as well today as my experience the student should be ready for the work world.	*1*	*4.2*	*4.2*	*83.3*
	Since I graduated from this program in 1980, I'm not sure if it's even offered any longer. At that time, a strong foundation in analog electronics was the core of the program and well suited to then industry at that time.	*1*	*4.2*	*4.2*	*87.5*
	The IET program was the stepping stone to my bachelors, i work in manufacturing enviorment and routinely relie on my IET skills to trouble shoot hardware and software. IET program should focus on measurement transducers / signal conditioning / programming of machine controllers / the development of machine control algorythms. Business classes to understand why we make product$.	*1*	*4.2*	*4.2*	*91.7*
	The program was great. I transferred to the school of business and received my BS in CIS there. I work in the software industry though and do not really get a chance to use my IET knowledge.	*1*	*4.2*	*4.2*	*95.8*
	When i completed the IET program there was no instruction in PLC's, Robotics Applications, computers ect.	*1*	*4.2*	*4.2*	*100.0*
	Total	*24*	*100.0*	*100.0*	

q9 Name

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		*3*	*12.5*	*12.5*	*12.5*
	----------	*1*	*4.2*	*4.2*	*16.7*
	----------	*1*	*4.2*	*4.2*	*20.8*
	----------	*1*	*4.2*	*4.2*	*25.0*
	----------	*1*	*4.2*	*4.2*	*29.2*
	----------	*1*	*4.2*	*4.2*	*33.3*
	----------	*1*	*4.2*	*4.2*	*37.5*
	----------	*1*	*4.2*	*4.2*	*41.7*
	----------	*1*	*4.2*	*4.2*	*45.8*
	----------	*1*	*4.2*	*4.2*	*50.0*
	----------	*1*	*4.2*	*4.2*	*54.2*
	----------	*1*	*4.2*	*4.2*	*58.3*
	----------	*1*	*4.2*	*4.2*	*62.5*
	----------	*1*	*4.2*	*4.2*	*66.7*
	----------	*1*	*4.2*	*4.2*	*70.8*

	----------	1	4.2	4.2	75.0
	----------	1	4.2	4.2	79.2
	----------	1	4.2	4.2	83.3
	----------	1	4.2	4.2	87.5
	----------	1	4.2	4.2	91.7
	----------	1	4.2	4.2	95.8
	----------	1	4.2	4.2	100.0
	Total	24	100.0	100.0	

q10 Home address

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		5	20.8	20.8	20.8
	----------	1	4.2	4.2	25.0
	----------	1	4.2	4.2	29.2
	----------	1	4.2	4.2	33.3
	----------	1	4.2	4.2	37.5
	----------	1	4.2	4.2	41.7
	----------	1	4.2	4.2	45.8
	----------	1	4.2	4.2	50.0
	----------	1	4.2	4.2	54.2
	----------	1	4.2	4.2	58.3
	----------	1	4.2	4.2	62.5
	----------	1	4.2	4.2	66.7
	----------	1	4.2	4.2	70.8
	----------	1	4.2	4.2	75.0
	----------	1	4.2	4.2	79.2
	----------	1	4.2	4.2	83.3
	----------	1	4.2	4.2	87.5
	----------	1	4.2	4.2	91.7
	----------	1	4.2	4.2	95.8
	----------	1	4.2	4.2	100.0
	Total	24	100.0	100.0	

q11 Home phone

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		8	33.3	33.3	33.3
	----------	1	4.2	4.2	37.5
	----------	1	4.2	4.2	41.7
	----------	1	4.2	4.2	45.8
	----------	1	4.2	4.2	50.0
	----------	1	4.2	4.2	54.2

	----------	1	4.2	4.2	58.3
	----------	1	4.2	4.2	62.5
	----------	1	4.2	4.2	66.7
	----------	1	4.2	4.2	70.8
	----------	1	4.2	4.2	75.0
	----------	1	4.2	4.2	79.2
	----------	1	4.2	4.2	83.3
	----------	1	4.2	4.2	87.5
	----------	1	4.2	4.2	91.7
	----------	1	4.2	4.2	95.8
	----------	1	4.2	4.2	100.0
	Total	24	100.0	100.0	

q12 Personal e-mail

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		4	16.7	16.7	16.7
	----------	1	4.2	4.2	20.8
	----------	1	4.2	4.2	25.0
	----------	1	4.2	4.2	29.2
	----------	1	4.2	4.2	33.3
	----------	1	4.2	4.2	37.5
	----------	1	4.2	4.2	41.7
	----------	1	4.2	4.2	45.8
	----------	1	4.2	4.2	50.0
	----------	1	4.2	4.2	54.2
	----------	1	4.2	4.2	58.3
	----------	1	4.2	4.2	62.5
	----------	1	4.2	4.2	66.7
	----------	1	4.2	4.2	70.8
	----------	1	4.2	4.2	75.0
	----------	1	4.2	4.2	79.2
	----------	1	4.2	4.2	83.3
	----------	1	4.2	4.2	87.5
	----------	1	4.2	4.2	91.7
	----------	1	4.2	4.2	95.8
	----------	1	4.2	4.2	100.0
	Total	24	100.0	100.0	

q13 Degrees/Year/School

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		5	20.8	20.8	20.8

	4	*1*	*4.2*	*4.2*	*25.0*
	AAS - 1969 - Ferris BAS - 1989 - Sienna Heights University	*1*	*4.2*	*4.2*	*29.2*
	AAS FSC 1970, BS Eastern Michigan University 2000	*1*	*4.2*	*4.2*	*33.3*
	AAS FSC BS, Telecommunications Management. Golden Gate University, San Francisco, CA	*1*	*4.2*	*4.2*	*37.5*
	AAS IET /1975/ Ferris State College AAS Physical Therapist Assistant/1995/ Genesee Community College	*1*	*4.2*	*4.2*	*41.7*
	AAS IET 1982 Technical and Applied Arts	*1*	*4.2*	*4.2*	*45.8*
	AAS IET FSU 1976 BSME SVSU 1995 MS Technological Processes SVSU 2007	*1*	*4.2*	*4.2*	*50.0*
	AAS in IET, FSC 1976	*1*	*4.2*	*4.2*	*54.2*
	AAS Industrial Electronics, 1975, Ferris BSEET Electrical Engr Tech, 1988, Saginaw Valley State University.	*1*	*4.2*	*4.2*	*58.3*
	AAS/80/Fsu BS/2007/Univ of Phoenix (Only took 27 years!!!!)	*1*	*4.2*	*4.2*	*62.5*
	Assoc. Industrial Electronic Technology FSU - 1975	*1*	*4.2*	*4.2*	*66.7*
	Assoc. Industrial Electronics	*1*	*4.2*	*4.2*	*70.8*
	Associate	*1*	*4.2*	*4.2*	*75.0*
	Associate in IET/1972/Ferris State College Associate in Engineering/1973/Ferris State College BSEEE/1977/University-of-Michigan-Dearborn	*1*	*4.2*	*4.2*	*79.2*
	BS Trade Technical Education/1978/Ferris State College, School of Education. AAS Industrial Electronics Technology/1975/Ferris State College, School of Technology.	*1*	*4.2*	*4.2*	*83.3*
	EEET/2002/Ferris State university - technology school	*1*	*4.2*	*4.2*	*87.5*
	IET Associates Degree - 2005 - Ferris WET Associates Degree - 2005 - Ferris WET Bachelors Degree - 2007 - Ferris Quality Engineering Certificate - 2007 - Ferris	*1*	*4.2*	*4.2*	*91.7*
	IET/88/FSU BSET/99/LTU MBA /04/LTU	*1*	*4.2*	*4.2*	*95.8*
	Plastics Technology (AAS) - FSU - 1992 Production Mgt. (BS) - FSU - 1992	*1*	*4.2*	*4.2*	*100.0*
	Total	*24*	*100.0*	*100.0*	

q14 Company name

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		*5*	*20.8*	*20.8*	*20.8*
	American Axle and Manufacturing	*1*	*4.2*	*4.2*	*25.0*
	Axcelis	*1*	*4.2*	*4.2*	*29.2*
	Chrysler LLC	*1*	*4.2*	*4.2*	*33.3*
	Consumers Energy	*1*	*4.2*	*4.2*	*37.5*
	Delphi	*1*	*4.2*	*4.2*	*41.7*
	Delphi Electronics & Safety	*1*	*4.2*	*4.2*	*45.8*
	Dow Chemical	*2*	*8.3*	*8.3*	*54.2*
	DTE Energy	*1*	*4.2*	*4.2*	*58.3*
	Dykstra Home Exteriors	*1*	*4.2*	*4.2*	*62.5*
	Electronic Systems Associates	*1*	*4.2*	*4.2*	*66.7*

	Ford Motor Company (retired)	*1*	*4.2*	*4.2*	*70.8*
	Hitachi Data Systems	*1*	*4.2*	*4.2*	*75.0*
	International Business Machines (IBM)	*1*	*4.2*	*4.2*	*79.2*
	LS Funding	*1*	*4.2*	*4.2*	*83.3*
	Midland Cogeneration Venture	*1*	*4.2*	*4.2*	*87.5*
	Northern Colorado Rehabilitation Hospital	*1*	*4.2*	*4.2*	*91.7*
	RoMan Engineering Services	*1*	*4.2*	*4.2*	*95.8*
	Simpler Consulting, Inc	*1*	*4.2*	*4.2*	*100.0*
	Total	*24*	*100.0*	*100.0*	

q15 Company address

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		*9*	*37.5*	*37.5*	*37.5*
	1 Dauch Drive Detroit, Mi 48211	*1*	*4.2*	*4.2*	*41.7*
	100 Pine lake Lane Lake Orion, MI 48362	*1*	*4.2*	*4.2*	*45.8*
	100 Progress PL. Midland, MI 48640	*1*	*4.2*	*4.2*	*50.0*
	1602 Building Midland, MI 48667	*1*	*4.2*	*4.2*	*54.2*
	1901 W Braker Ln Austin, Tx. 78758	*1*	*4.2*	*4.2*	*58.3*
	2000 Second Avenue, Detroit, Michigan 48226-1279	*1*	*4.2*	*4.2*	*62.5*
	4401 Union Street Johnstown, CO 80534	*1*	*4.2*	*4.2*	*66.7*
	4412 Kemp Street PO Box 23 Moline MI 49335	*1*	*4.2*	*4.2*	*70.8*
	800 Chrysler Drive Auburn Hills, MI 48326-2757	*1*	*4.2*	*4.2*	*75.0*
	Dearborn, Michigan	*1*	*4.2*	*4.2*	*79.2*
	Palm Beach Gardens, FL 33408	*1*	*4.2*	*4.2*	*83.3*
	PO Box 9005 Kokomo, IN 56904-9005	*1*	*4.2*	*4.2*	*87.5*
	Saginaw, MI	*1*	*4.2*	*4.2*	*91.7*
	Same	*1*	*4.2*	*4.2*	*95.8*
	same as Home address	*1*	*4.2*	*4.2*	*100.0*
	Total	*24*	*100.0*	*100.0*	

q16 Your title

		Frequency	Percent	Valid Percent	Cumulative Percent
		3	*12.5*	*12.5*	*12.5*
	Controls Supervisor	*1*	*4.2*	*4.2*	*16.7*
	Coordinator/operaotr	*1*	*4.2*	*4.2*	*20.8*
	Director of Consulting Services	*1*	*4.2*	*4.2*	*25.0*
	Engineering Group Manager	*1*	*4.2*	*4.2*	*29.2*
	Manufacturing Controls Engineer	*1*	*4.2*	*4.2*	*33.3*
	Owner	*2*	*8.3*	*8.3*	*41.7*
	Physical Therapist Assistant	*1*	*4.2*	*4.2*	*45.8*

	Sales Consultant	*1*	*4.2*	*4.2*	*50.0*
	Senior Field Service Engineer	*1*	*4.2*	*4.2*	*54.2*
	Senior R&D Technologist	*1*	*4.2*	*4.2*	*58.3*
	Sr. Instrument & Control Technician	*1*	*4.2*	*4.2*	*62.5*
	Sr. NVH Quality engineer	*1*	*4.2*	*4.2*	*66.7*
	Sr. Strategist - North Amer. Federal business	*1*	*4.2*	*4.2*	*70.8*
	Sr. Telecommunications Specialist	*1*	*4.2*	*4.2*	*75.0*
	Supervisor - Core Dynamics	*1*	*4.2*	*4.2*	*79.2*
	Supervisor Power Equipment Relay Test	*1*	*4.2*	*4.2*	*83.3*
	Technical Advisor	*1*	*4.2*	*4.2*	*87.5*
	Technical Support Manager III	*1*	*4.2*	*4.2*	*91.7*
	VP of Business Development	*1*	*4.2*	*4.2*	*95.8*
	Welding Engineer	*1*	*4.2*	*4.2*	*100.0*
	Total	*24*	*100.0*	*100.0*	

q17 FSU Degree & Year graduated from FSU

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		*5*	*20.8*	*20.8*	*20.8*
	1983	*1*	*4.2*	*4.2*	*25.0*
	A.A.S. Industrial Electronics 1985	*1*	*4.2*	*4.2*	*29.2*
	AAS - Industrial Electronics Technology - 1969	*1*	*4.2*	*4.2*	*33.3*
	AAS IET - '86	*1*	*4.2*	*4.2*	*37.5*
	AAS IET 1975	*1*	*4.2*	*4.2*	*41.7*
	AAS IET 1976	*1*	*4.2*	*4.2*	*45.8*
	AAS IET 1982	*1*	*4.2*	*4.2*	*50.0*
	AAS Ind Electtonics Technology 1970	*1*	*4.2*	*4.2*	*54.2*
	AAS Industrial Electronics, 1975	*1*	*4.2*	*4.2*	*58.3*
	AAS Industrial Electronics, 1980	*1*	*4.2*	*4.2*	*62.5*
	Assoc. Degree 1975	*1*	*4.2*	*4.2*	*66.7*
	Associate 1973	*1*	*4.2*	*4.2*	*70.8*
	BS Trade Technical Education, 1978	*1*	*4.2*	*4.2*	*75.0*
	EEET - Bachelor of science 2002	*1*	*4.2*	*4.2*	*79.2*
	IET / 88	*1*	*4.2*	*4.2*	*83.3*
	IET, 1976	*1*	*4.2*	*4.2*	*87.5*
	Industrial Electronics Technology - 1971	*1*	*4.2*	*4.2*	*91.7*
	See Above	*1*	*4.2*	*4.2*	*95.8*
	WET, IET, QE - 2007	*1*	*4.2*	*4.2*	*100.0*
	Total	*24*	*100.0*	*100.0*	

q18 Work phone

	Frequency	Percent	Valid Percent	Cumulative Percent

Valid		11	45.8	45.8	45.8
	(248) 336-9138	1	4.2	4.2	50.0
	248-576-3157	1	4.2	4.2	54.2
	248 693-3081	1	4.2	4.2	58.3
	313 758 4129	1	4.2	4.2	62.5
	3132353842	1	4.2	4.2	66.7
	512-977-7611	1	4.2	4.2	70.8
	616-862-9632	1	4.2	4.2	75.0
	765-451-1429	1	4.2	4.2	79.2
	810-487-0124	1	4.2	4.2	83.3
	970-619-3438	1	4.2	4.2	87.5
	989-284-1093	1	4.2	4.2	91.7
	989-636-5858	1	4.2	4.2	95.8
	989 633 7944	1	4.2	4.2	100.0
	Total	24	100.0	100.0	

q19 Work fax

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		20	83.3	83.3	83.3
	000-000-0000	1	4.2	4.2	87.5
	248-585-5577	1	4.2	4.2	91.7
	248 693-3081	1	4.2	4.2	95.8
	616-877-0015	1	4.2	4.2	100.0
	Total	24	100.0	100.0	

q20 Work e-mail

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		13	54.2	54.2	54.2
	cary.ketelhut@aam.com	1	4.2	4.2	58.3
	dacomar@midcogen.com	1	4.2	4.2	62.5
	eericson1@mac.com	1	4.2	4.2	66.7
	Esalink@aol.com	1	4.2	4.2	70.8
	jerry.lemon@hds.com	1	4.2	4.2	75.0
	jim.candela@axcelis.com	1	4.2	4.2	79.2
	khaddix@romaneng.com	1	4.2	4.2	83.3
	no_thank_you@no_spam_today.com	1	4.2	4.2	87.5
	paul.j.dobosz@delphi.com	1	4.2	4.2	91.7
	rdd@cisco.com	1	4.2	4.2	95.8
	spg@chrysler.com	1	4.2	4.2	100.0
	Total	24	100.0	100.0	

EMPLOYER SURVEY RESULTS

CNS/EET Dept APR...CNS Employer

Frequencies

Prepared by: Institutional Research & Testing, 05/08

Statistics

	N				
	Valid	Missing	Mean	Median	Std. Deviation
q1a Perform well overall comparatively	4	0	4.25	4.00	.500
q1b Written & oral skills effectively	4	0	3.25	3.00	1.500
q1c Critical thinking skills, etc.	4	0	4.50	4.50	.577
q1d Strong technical understanding	4	0	5.00	5.00	.000
q1e Apply technical theory	4	0	4.50	4.50	.577
q1f Adequate mathematical skills	4	0	4.75	5.00	.500
q1g Self-motivated & enthusiastic	4	0	4.75	5.00	.500
q1h Ready & able to assume responsibility	4	0	4.75	5.00	.500
q1i Plan effective use of available resources	4	0	4.25	4.00	.500
q1j Participate as part of a team	4	0	4.75	5.00	.500
q1k Work well with individuals from diverse backgrounds	4	0	4.50	4.50	.577
q1l Demonstrate good ethical values	4	0	4.50	4.50	.577
q1m Hire another FSU CNS graduate	4	0	4.25	4.00	.500
q1n Serve as an advisor to the CNS program	3	1	3.67	3.00	1.155
q2 Comments	4	0			

q1a Perform well overall comparatively

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Agree	3	75.0	75.0	75.0
	Strongly Agree	1	25.0	25.0	100.0
	Total	4	100.0	100.0	

q1b Written & oral skills effectively

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Disagree	2	50.0	50.0	50.0
	Somewhat Agree	1	25.0	25.0	75.0
	Strongly Agree	1	25.0	25.0	100.0
	Total	4	100.0	100.0	

q1c Critical thinking skills, etc.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Agree	2	50.0	50.0	50.0
	Strongly Agree	2	50.0	50.0	100.0
	Total	4	100.0	100.0	

q1d Strong technical understanding

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	4	100.0	100.0	100.0

q1e Apply technical theory

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Agree	2	50.0	50.0	50.0
	Strongly Agree	2	50.0	50.0	100.0
	Total	4	100.0	100.0	

q1f Adequate mathematical skills

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Agree	1	25.0	25.0	25.0
	Strongly Agree	3	75.0	75.0	100.0
	Total	4	100.0	100.0	

q1g Self-motivated & enthusiastic

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Agree	1	25.0	25.0	25.0
	Strongly Agree	3	75.0	75.0	100.0
	Total	4	100.0	100.0	

q1h Ready & able to assume responsibility

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Agree	1	25.0	25.0	25.0
	Strongly Agree	3	75.0	75.0	100.0
	Total	4	100.0	100.0	

q1i Plan effective use of available resources

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Agree	3	75.0	75.0	75.0
	Strongly Agree	1	25.0	25.0	100.0
	Total	4	100.0	100.0	

q1j Participate as part of a team

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Agree	1	25.0	25.0	25.0
	Strongly Agree	3	75.0	75.0	100.0
	Total	4	100.0	100.0	

q1k Work well with individuals from diverse backgrounds

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Agree	2	50.0	50.0	50.0
	Strongly Agree	2	50.0	50.0	100.0
	Total	4	100.0	100.0	

q1l Demonstrate good ethical values

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Agree	2	50.0	50.0	50.0
	Strongly Agree	2	50.0	50.0	100.0
	Total	4	100.0	100.0	

q1m Hire another FSU CNS graduate

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Agree	3	75.0	75.0	75.0
	Strongly Agree	1	25.0	25.0	100.0
	Total	4	100.0	100.0	

q1n Serve as an advisor to the CNS program

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neutral/No Opinion	2	50.0	66.7	66.7
	Strongly Agree	1	25.0	33.3	100.0
	Total	3	75.0	100.0	
Missing	System	1	25.0		
Total		4	100.0		

q2 Comments

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		2	50.0	50.0	50.0
	As an M.S. grad from Ferris myself, it is refreshing to see that Ferris continues to prepare its graduates for the workplace. I am always willing to consider fellow Ferris graduates for positions in my department.	1	25.0	25.0	75.0
	Outstanding technical skills but lacking in verbal & written communication & presentation skills. This hinders career advancement in a world where IT continues to be more & more integrated with the business.	1	25.0	25.0	100.0
	Total	4	100.0	100.0	

CNS/EET Dept APR...EEET Employer

Frequencies

Prepared by: Institutional Research & Testing, 05/08

Statistics

	N		Mean	Median	Std. Deviation
	Valid	Missing			
q1a Perform well overall comparatively	3	0	4.67	5.00	.577
q1b Written & oral skills effectively	3	0	4.67	5.00	.577
q1c Critical thinking skills, etc.	3	0	4.33	4.00	.577
q1d Strong technical understanding	3	0	4.33	4.00	.577
q1e Apply technical theory	3	0	4.33	4.00	.577
q1f Adequate mathematical skills	3	0	4.33	4.00	.577
q1g Self-motivated & enthusiastic	3	0	4.67	5.00	.577
q1h Ready & able to assume responsibility	3	0	4.67	5.00	.577
q1i Plan effective use of available resources	3	0	4.33	4.00	.577
q1j Participate as part of a team	3	0	4.67	5.00	.577
q1k Work well with individuals from diverse backgrounds	3	0	4.67	5.00	.577
q1l Demonstrate good ethical values	2	1	5.00	5.00	.000
q1m Hire another FSU CNS graduate	3	0	4.67	5.00	.577
q1n Serve as an advisor to the CNS program	3	0	3.33	3.00	1.528
q2 Comments	3	0			

Frequency Table

q1a Perform well overall comparatively

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Agree	1	33.3	33.3	33.3
	Strongly Agree	2	66.7	66.7	100.0
	Total	3	100.0	100.0	

q1b Written & oral skills effectively

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Agree	1	33.3	33.3	33.3
	Strongly Agree	2	66.7	66.7	100.0
	Total	3	100.0	100.0	

q1c Critical thinking skills, etc.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Agree	2	66.7	66.7	66.7
	Strongly Agree	1	33.3	33.3	100.0
	Total	3	100.0	100.0	

q1d Strong technical understanding

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Agree	2	66.7	66.7	66.7
	Strongly Agree	1	33.3	33.3	100.0
	Total	3	100.0	100.0	

q1e Apply technical theory

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Agree	2	66.7	66.7	66.7
	Strongly Agree	1	33.3	33.3	100.0
	Total	3	100.0	100.0	

q1f Adequate mathematical skills

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Agree	2	66.7	66.7	66.7
	Strongly Agree	1	33.3	33.3	100.0
	Total	3	100.0	100.0	

q1g Self-motivated & enthusiastic

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Agree	1	33.3	33.3	33.3
	Strongly Agree	2	66.7	66.7	100.0
	Total	3	100.0	100.0	

q1h Ready & able to assume responsibility

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Agree	1	33.3	33.3	33.3
	Strongly Agree	2	66.7	66.7	100.0
	Total	3	100.0	100.0	

q1i Plan effective use of available resources

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Agree	2	66.7	66.7	66.7
	Strongly Agree	1	33.3	33.3	100.0
	Total	3	100.0	100.0	

q1j Participate as part of a team

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Agree	1	33.3	33.3	33.3
	Strongly Agree	2	66.7	66.7	100.0
	Total	3	100.0	100.0	

q1k Work well with individuals from diverse backgrounds

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Agree	1	33.3	33.3	33.3
	Strongly Agree	2	66.7	66.7	100.0
	Total	3	100.0	100.0	

q1l Demonstrate good ethical values

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	2	66.7	100.0	100.0
Missing	System	1	33.3		
Total		3	100.0		

q1m Hire another FSU EET graduate

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Agree	1	33.3	33.3	33.3
	Strongly Agree	2	66.7	66.7	100.0
	Total	3	100.0	100.0	

q1n Serve as an advisor to the EET program

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat Disagree	1	33.3	33.3	33.3
	Neutral/No Opinion	1	33.3	33.3	66.7
	Strongly Agree	1	33.3	33.3	100.0
	Total	3	100.0	100.0	

q2 Comments

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		2	66.7	66.7	66.7
	[redacted] was a very good Test Technician for us. He has since moved on to another career opportunity. We didn't want to see him go but we wish him great success.	1	33.3	33.3	100.0
	Total	3	100.0	100.0	

FACULTY PERCEPTIONS SURVEY

Question **V**	Faculty Member>>>>	1	2	3	4	5	6	7	8	9	10	11	AV
	Program>>>>>	C	E	C	E	C	C	E	C	E	C	E	
1. The scheduling of courses is done at appropriate times of the day.		4	5	5	4	5	5	5	4	4	4	4	4.5
2. The scheduling is done in appropriate labs.		5	5	5	4	4	3	3	5	5	4	4	4.3
3. The appropriate instructors are assigned to courses.		5	5	5	4	4	3	3	4	4	3	3	3.9
4. Lecture class sizes are appropriate for facilities.		3	5	5	3	5	3	3	4	4	4	4	3.9
5. Laboratory class sizes are appropriate for facilities.		4	5	5	3	5	3	3	4	4	4	4	4.0
6. The department gets its fair share of capital improvement moneys		2	3	3	2	3	2	2	3	3	2	1	2.4
7. The department operating budget is adequate.		3	3	3	3	3	2	2	2	2	1	1	2.3
8. Adequate funds are allocated for faculty development.		3	2	2	3	4	2	2	3	3	1	1	2.4
9. Adequate release time is provided for faculty development.		3	1	1	3	4	2	2	4	2	2	2	2.4
10. Adequate provisions are made for release time for course development.		2	2	2	2	4	1	1	3	3	1	1	2.0
11. Adequate technical support is provided to the department.		4	4	4	4	4	3	3	4	5	5	4	4.0
12. Secretarial support is adequate.		5	4	4	5	5	5	5	5	5	4	4	4.6
13. Computer support from the TAC is adequate.		4	4	4	4	4	3	3	4	4	2	2	3.5
14. Adequate resources for program marketing activities are provided.		3	1	1	3	3			1	2	1	1	1.8
15. Faculty are encouraged to stay current in their field.		4	2	2	4	5	4	4	3	4	2	2	3.3
16. The advisory committee is adequately utilized by our program.		4	3	3	4	4	4	4	4	4	5	4	3.9
17. The advisory committee's suggestions are encouraged.		4	3	3	4	5	5	5	5	5	5	5	4.5
18. The advisory committee's suggestions are acted upon.		4	3	3	4	4	3	3	4	4	3	3	3.5
19. The incoming students are academically prepared for the curriculum.		3	4	4	3	3	3	2	4	4	2	2	3.1
20. The incoming students possess good work ethics.		2	3	3	2	3	2	2	4	4	2	2	2.6
21. The students posses adequate study habits.		3	3	3	3	3	2	2	3	3	2	2	2.6
22. Adequate remedial electrical courses are offered.		3	3	3	3	4	3	3	4	3	3	3	3.2
23. The students are aware of available tutoring opportunities.		4	4	4	4	4	4	4	4	4	4	4	4.0
24. The students take advantage of available tutoring opportunities.		3	2	2	3	2	3	2	4	3	2	2	2.5
25. The graduates have attained an appropriate level of maturity.		4	4	4	4	4	2	2	4	4	4	4	3.6
26. The graduates have attained an appropriate level of competence.		4	4	4	4	5	4	4	4	4	4	4	4.1
27. The graduates leave with good critical thinking skills.		4	4	4	4	5	5	4	4	4	4	4	4.2
28. The graduates leave with a sense of professional identity.		4	4	4	4	5	4	4	4	3	2	2	3.6
29. Students take advantage of professional organization membership.		3	3	3	3	3	4	3	2	3	1	1	2.6
30. The facilities are kept neat and clean.		4	4	4	4	4	4	4	4	4	4	4	4.0
31. The facilities present a good image to students and visitors.		5	2	2	5	4	4	4	5	5	3	3	3.8
32. Lecture rooms are adequate for the number of students scheduled.		4	4	4	4	4	2	2	4	4	4	4	3.6
33. Laboratory rooms are adequate for the number of students scheduled.		4	4	4	4	4	3	3	4	4	4	4	3.8
34. Laboratory equipment is adequate for the number of students scheduled.		4	4	4	4	4	3	3	4	4	1	1	3.3
35. The instructional materials and supplies are adequate.		4	3	3	4	4	2	2	5	5	1	1	3.1
36. Laboratory equipment is adequately provided and maintained.		5	3	3	5	5	4	4	5	4	4	4	4.2
37. Adequate storage space is provided.		4	4	4	4	4	4	4	3	2	3	3	3.5
38. The HVACR system is adequate in lecture rooms.		2	2	2	2	3	2	2	3	3	1	2	2.2
39. The lighting system is adequate in lecture rooms.		4	2	2	4	4	4	4	4	4	4	4	3.6
40. The white boards are adequate in lecture rooms.		4	2	2	4	4	4	4	4	4	4	4	3.6
41. The noise level in lecture rooms is acceptable.		4	2	2	4	4	4	4	4	4	4	4	3.6
42. Audio visual equipment is up to date and adequate.		2	1	1	2	3	3	3	3	3	2	2	2.3
43. The lighting system is adequate in lab rooms.		4	2	2	4	4	4	4	5	5	4	5	3.9
44. The HVACR system is adequate in lab rooms.		2	2	2	2	3	2	2	3	3	1	1	2.1
45. The curriculum provides the proper mix of courses.		4	4	4	4	4	4	3	4	4	3	3	3.7
46. The academic level of the curriculum is appropriate to the mission.		5	4	4	5	4	4	4	5	5	4	4	4.4
47. There is adequate continuity among courses.		4	4	4	4	5	4	4	5	4	4	4	4.2
48. The curriculum has a path for students who progress at a slower pace.		2	3	3	2	4	4	4	4	4	3	3	3.3
49. The curriculum provides adequate choices of specialization.		4	3	3	4	3	4	2	4	4	3	3	3.4

50. The curriculum is relevant to the needs of industry.	5	4	4	5	5	4	4	5	5	4	4	4.5
51. The faculty are technically competent.	5	4	4	5	4	5	5	5	5	4	4	4.5
52. The faculty know how to teach.	5	4	4	5	4	4	4	4	4	4	4	4.2
Faculty Member>>>>	1	2	3	4	5	6	7	8	9	10	11	AV
Program>>>>>	C	E	C	E	C	C	E	C	E	C	E	
Question **V**												
53. The faculty are well prepared for class.	5	4	4	5	4			4	4	4	4	4.2
54. The faculty are concerned with the educational needs of the students.	5	4	4	5	5	4	4	5	5	5	4	4.5
55. The faculty are active in committees.	4	4	4	4	4	5	5	5	5	5	4	4.5
56. The faculty are current in their field.	4	3	3	4	5			4	4	2	2	3.4
57. The faculty have adequate work experience.	5	5	5	5	5	5	5	5	5	5	5	5.0
58. The advisory committee is knowledgeable about the program.	5	4	4	5	5	4	4	5	5	4	4	4.5
59. The advisory committee consists of the appropriate mix of people.	4	4	4	4	4	4	4	4	4	4	4	4.0
60. The advisory committee is supportive of the program.	5	4	4	5	5	5	5	5	5	4	4	4.6
61. The Advisory Committee provides good guidance for the program.	5	4	4	5	5	4	4	4	4	4	4	4.3

ADVISORY COMMITTEE SURVEY

EET / IET

The Industrial Electronic Technology and the Electrical/Electronic Engineering Technology programs are going through academic program review within Ferris State University. The purpose of this survey is to obtain information from the members of the advisory committee regarding the curriculum, facilities, equipment, outcomes, graduates, micro and macro trends that might affect job placement (both positively and negatively). Your assistance in this project is sincerely appreciated.

1. How would you rate the curriculum of the IET program?

Excellent				Poor
5	4	3	2	1

   Comments:

2. How would you rate the curriculum of the BSEET program?

Excellent				Poor
5	4	3	2	1

   Comments:

3. How would you rate the quality of the equipment used in both programs?

Excellent				Poor
5	4	3	2	1

   Comments:

4. How would you rate the quality of the facilities for both programs?

Excellent				Poor
5	4	3	2	1

   Comments:

5. For both programs, are the outcomes appropriate for current industrial practice?

Excellent				Poor
5	4	3	2	1

   Comments:

6. What micro or macro trends do you see in your industry that might affect job placement?

7. How might we improve the IET and BSEET programs?

Thank you for you time and feedback. You input is valuable to us.

CNS

The Computer Network Systems program is going through academic program review within Ferris State University. The purpose of this survey is to obtain information from the members of the advisory committee regarding the curriculum, facilities, equipment, outcomes, graduates, micro and macro trends that might affect job placement (both positively and negatively). Your assistance in this project is sincerely appreciated.

8. How would you rate the curriculum of the CNS program?

Excellent				Poor
5	4	3	2	1

Comments:

9. How would you rate the quality of the equipment used in the CNS program?

Excellent				Poor
5	4	3	2	1

Comments:

10. How would you rate the quality of the facilities for the CNS program?

Excellent				Poor
5	4	3	2	1

Comments:

11. For the CNS program, are the outcomes appropriate for current industrial practice?

Excellent				Poor
5	4	3	2	1

Comments:

12. What micro or macro trends do you see in your industry that might affect job placement?

13. How might we improve the CNS program?

Thank you for you time and feedback. You input is valuable to us.

Appendix 2 – Program Profile

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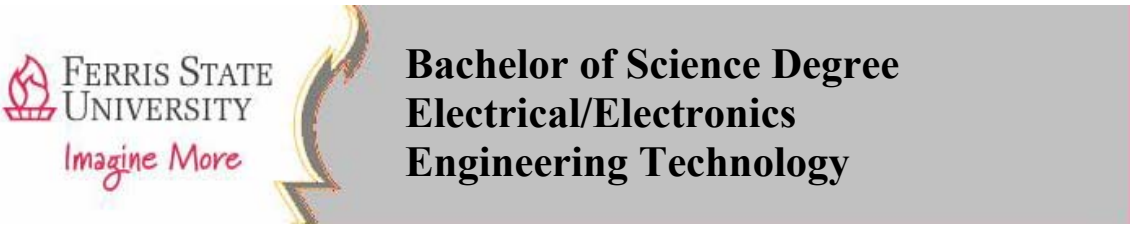
616.446.4301 cell #

FERRIS STATE UNIVERSITY
Imagine More

Associate in Applied Science in Industrial Electronics

Name:							
email:			ID:				
Advisor:			Ph:				
		Major Courses	Cr	Grade	Pts.	Sem	Year
ECNS	322	PC Data Acquisition and Control	3				
EEET	111	Mobile Robots	1				
EEET	114	Electric Circuits I	4				
EEET	122	Digital Electronics I	4				
EEET	124	Electric Circuits II	4				
EEET	210	Communications Circuits	3				
EEET	211	Electronics	3				
EEET	212	Digital Electronics II	4				
EEET	221	Troubleshooting	3				
EEET	22	Microprocessor Applications	4				
EEET	224	Industrial Automation and Motors	4				
		Technical Elective					
		Consult Advisor	3				
		Directed Elective(C- or better required / Consult with your advisor)					
		Directed Elective	3				
		Directed Elective	3				
		Directed Elective	3				
		Communications Competency					
ENGL	150	English 1	3				
ENGL	250	English 2	3				
		Quantitative Skills					
MATH	116	Intermediate Algebra	4				
MATH	126	Algebra & Analytical Trig.	4				
		Scientific Understanding					
PHYS	211	Introductory Physics	4				
		Cultural Enrichment					
		Cultural Enrichment	3				
		Social Awareness					
		Social Awareness	3				
		Freshman Seminar					
FSUS	100	Freshman Seminar	1				

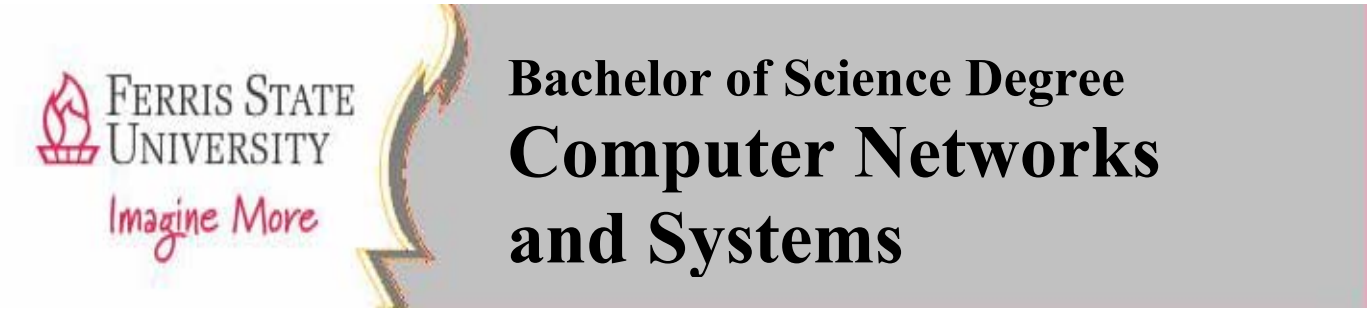
Bachelor of Science in Electrical/Electronics Technology



Name:							
email:			ID:				
Advisor:			Ph:				
		Major Courses	Cr	Grade	Pts.	Sem	Year
ECNS	311	High Level Programming	2				
EEET	321	Network Analysis	3				
EEET	393	Internship	4				
EEET	418	Project Management	2				
EEET	428	Senior Project	2				
		Concentration					
EEET	412	Advanced Digital Systems	4				
EEET	422	Advanced Digital Design	4				
EEET	411	Advanced Communications I	4				
EEET	421	Advanced Communications II	4				
EEET	313	Electric Power & Machines	4				
EEET	323	Industrial Automation and Controls	4				
ECNS	323	Real Time Operating Systems	4				
ECNS	310	C/C++ Programming Applications	1				
ECNS	315	Network Theory & Test	3				
ECNS	325	Wireless Networks	3				
ECNS	321	Embedded Computer Systems	4				
ECNS	410	Digital Signal Processing	4				
EEET	414	Industrial Process Communication	4				
EEET	424	Industrial Motion Control	4				
EEET	499	Special Topics	V				
		CAD Electives					
ETEC	140	Engineering Graphics	3				
EEET	312	Electrical Design Automation	3				
		Technical Science					
MECH	250	Fluid Power	2				
MECH	211	Fluid Mechanics	4				

MECH	223	Thermodynamics	3				
MECH	340	Statics and Strengths	4				
MFGE	353	Statistical Quality	3				
MFGE	341	Quality Science Statistics	3				
MFGE	342	Statistical Process Engineering	3				
PDET	413	Applied Fluid Thermodynamics	3				
		Directed Elective(C- or better required / Consult with your advisor)					
MFGE	423	Engineering Economics	2				
		Approved Selection	V				
		Communications Competency					
ENGL	311	Advanced Technical Writing	3				
COMM	121	Fundamentals of Public Speaking	3				
		Quantitative Skills					
MATH	216	Applied Calculus	4				
MATH	226	Fourier Series/Applied Diff. Eqs	4				
		Scientific Understanding					
		Chemistry or Physics Elective	4				
		Cultural Enrichment					
		Cultural Enrichment	3				
		Cultural Enrichment 200+	3				
		Social Awareness					
		Social Awareness	3				
		Social Awareness 200+	3				
		Freshman Seminar					
FSUS	100	Freshman Seminar	1				

Bachelor of Science in Computer Networks and Systems



Name:	
email:	ID:
Advisor:	Ph:

		Major Courses	Cr	Grade	Pts.	Sem	Year
ECNS	115	Networks 1	3				
ECNS	125	Networks 2	3				
ECNS	215	Networks 3	3				
ECNS	225	Networks 4	3				
ECNS	310	C++ Program Applications	1				
ECNS	311	High Level Programming	2				
ECNS	315	Network Theory and Test	3				
ECNS	322	PC Data Acquisition and Control	3				
ECNS	323	Real Time Operating Systems	4				
ECNS	325	Wireless Networks	3				
ECNS	425	Network Security Theory & Tech	3				
EEET	111	Mobile Robots	1				
EEET	114	Electric Circuits 1	4				
EEET	122	Digital 1	4				
EEET	124	Electric Circuits 2	4				
EEET	212	Digital 2	4				
EEET	222	Microcomputer Applications	4				
EEET	393	Internship	4				
EEET	412	Advanced Digital Systems	4				
EEET	418	Project Management	2				
EEET	422	Advanced Digital Design	4				
EEET	428	Senior Project	2				

		Technical Courses					
ISYS	204	Visual Basic Programming	3				
		Directed Elective(C- or better required / Consult with your advisor)					
		Directed Elective	3				
		Directed Elective	3				
		Directed Elective	3				
		Communications Competancy					
ENGL	150	English 1	3				
ENGL	250	English 2	3				
ENGL	311	Advanced Technical Writing	3				
COMM	121	Fundamentals of Public Speaking	3				
		Quantitative Skills					
MATH	116	Intermediate Algebra	4				
MATH	126	Algebra & Analytical Trig.	4				
MATH	216	Applied Calculus	4				
MATH	226	Fourier Series/Applied Diff. Eqs	4				
		Scientific Understanding					
PHYS	211	Introductory Physics	4				
PHYS	212	Introductory Physics 2	4				
		Cultural Enrichment					
		Cultural Enrichment	3				
		Cultural Enrichment	3				
		Cultural Enrichment 200+	3				
		Social Awareness					
		Social Awareness	3				
		Social Awareness	3				
		Social Awareness 200+	3				
		Freshman Seminar					
FSUS	100	Freshman Seminar	1				

Unofficial Performance Stats

Major: Total Crs / Earned Crs / Honor Points	56
Degree: Total Crs / Earned Crs / Honor Pts	135
GPA Major:	
GPA Degree:	

EET & CNS Control Systems Minor

FERRIS STATE UNIVERSITY
COLLEGE OF TECHNOLOGY

Industrial Control Systems Minor
EET and CNS Department

Student Name: _____ Student ID #: _____

Program Major: _____ EET & CNS Advisor: _____

Required Courses (18 Credits)		Credits	Semester/Year	Grade
EEET 201	Electrical Fundamentals (MATH 116)	3		
EEET 301	Controls for Automation (EEET 201)	3		
EEET 313	Electrical Power & Machines (EEET 224 or 301)	4		
EEET 323	Industrial Automation Controls (EEET 224 or 301)	4		
EEET 414	Industrial Process Communications (EEET 323)	4		

- A minimum grade of C is required for each course in the minor.
- A maximum of 6 credits in this minor may overlap with your major.
- A maximum of 50% of the credits for this minor may be transferred.
- Students returning after an interrupted enrollment must meet the requirements in effect at the time of their return.

EET & CNS Programs Assessment

Assessment Instruments

Type	Status	Frequency
1. Course Survey Instruments	In Place Now	Each Semester/Each Course
2. Projects and Presentations	In Place Now	Determined by Course
3. Industrial Internship Experience	In Place Now	Minimum One-Ten Week Period Over Educational Experience
4. Capstone Experience	In Place Now	Senior Year
5. Senior Portfolio	Not In Place	End of Semester Sr. Year
6. Graduate Survey	Not In Place	After Program Requirements Are Met - Needs better implementation structure
7. Course Performance Records	In Place Now	Ongoing
8. Faculty Input	In Place Now	Regular Meetings, Department/College/University Curriculum Committee, etc.
9. Alumni Survey	In Place Now	Ongoing – needs strengthening
10. Employer Survey	In Place Now	Ongoing – needs strengthening
11. Advisor Committee Input	In Place Now	Ongoing and Annual Meeting
12. Academic Program Review	In Place Now	Five Years
13. Administrative Program Review	In Place Now	One Year
14. Post Tenure Faculty Review	In Place Now	Five Years

Program Outcomes: Course Contribution and Assessment

TAC/ABET Outcome Criterea →	**a**	**b**	**c**	**d**	**e**	**f**	**g**	**h**	**i**	**j**	**k**	**l**	**m**	**n**	**o**	**p**	**Evaluation Instrument →**	**Course Grade**	**Lab Performance**	Portfolio	Course Student Survey	Instructor Survey	Advisor Survey/Meeting Feedback	Report,, Presentations	Project, Results	Exit Survey	Alumni Survey	**Employer Survey**
Key Course Assessments																												
EEET 210 Communications	X	X	X	X	X	X	X				X							X	X									
EEET 311 High Level Programming	X	X	X	X		X	X				X							X										
ECNS 321 PC Data Acq. and Control	X	X	X	X	X	X	X				X							X	X						X			
EEET 393 Internship	X	X	X	X		X	X	X			X							X		X								X
EEET 415 Control Systems	X	X		X		X					X																	
EEET 422 Microprocessors or EEET 424 Motion Control	X	X	X	X	X	X	X				X							X	X									
EEET 418 Project Management	X	X		X		X	X	X	X	X	X							X										
EEET 428 Senior Project	X	X	X	X	X	X	X	X	X	X	X							X	X	X					X			

Program Outcomes: Course Contribution and Assessment

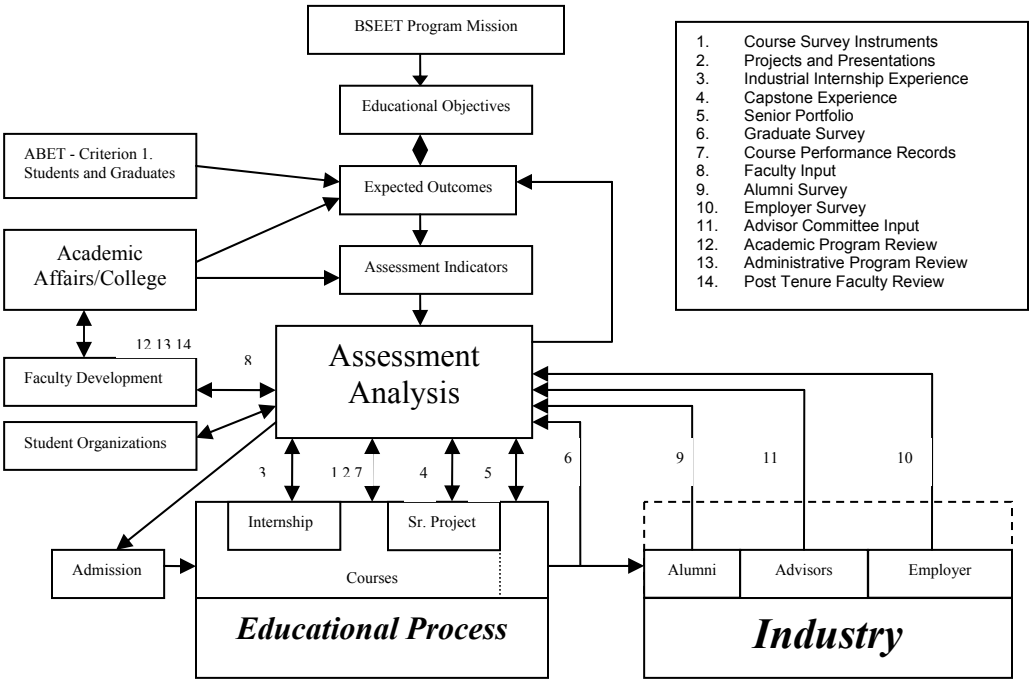
TAC/ABET Outcome Criterea →	**a**	**b**	**c**	**d**	**e**	**f**	**g**	**h**	**i**	**j**	**k**	**l**	**m**	**n**	**o**	**p**	**Evaluation Instrument →**	**Course Grade**	**Lab Performance**	Portfolio	Course Student Survey	Instructor Survey	Advisor Survey/Meeting Feedback	Report,, Presentations	Project, Results	Exit Survey	Alumni Survey	**Employer Survey**
Math 216 Applied Calculus And Math226 Fourier Transforms and DEQ		X				X					X																	
PHYS 211 Physics 1 PHYS 212 Physics 2		X				X					X							X	X									
Technical Science Course Directive Elective Course(s)		X	X			X					X							X										
General Education Courses							X		X	X	X							X										
Graduate Exit Survey																												

Outcome	ABET Criteria 2(a-k)	Assessment Method	Frequency	Responsible Person	Evaluation
1. Knowledge of fundamental concepts of analog and digital circuits, devices, and analysis; structured programming; automation and controls; microprocessor and embedded devices; project management; and control instrumentation; and technical areas outside of electronics.	a-k	Course Examinations, Lab Assignments EEET 110 IET Tech Prep EEET114 Electric Ckts 1 EEET 121 Electronics 1 EEET122 Digital 1 EEET 124 Electric Ckts 2 EEET 210 Communications EEET 211 Electronics 2 EEET 212 Digital 2 EEET 221 Troubleshooting EEET 222 Microprocessors EEET 224 Industrial Automation & Motors ECNS 221 PC Data Acquisition & Control EEET 418 Project Management Technical Science Course Directive Elective Course(s) PHYS 211 Physics 1 PHYS 212 Physics 2 Programming Projects and Examination – EEET 311 High Level Programming	Per Course Semester	Course Faculty	Student – Course Survey Faculty Report Department Curr. Comm. Advisory Committee
2. Advanced electrical/electronics technologies in a student directed field.	a-k	Course Examinations - EEET 411 Advanced Communications 1 EEET 412 Advanced Digital 1 EEET 413 Electr. Power and Machines EEET 421 Advanced Communications 2 EEET 422 Advanced Digital 2 EEET 423 Industrial Automation Controls ECNS 410 Digital Signal Processing ECNS 412 Real Time Operating Systems Technical Science Course Directive Elective Course(s)	Semester	Course Faculty	Student – Course Survey Faculty Department Curr. Comm. Advisory Committee

3. The ability to apply technical knowledge and hands-on skills that will enable them to enter industry and be successful in automation, control, or other related disciplines within electrical/electronics engineering technology.	a-h,k	Student Reports, Employer Reports, Completion - EEET 393 Internship Project Planning Materials, Course Examination - EEET 418 Project Management Project Report, Project Presentation, Project Demonstration - EEET 428 Senior Project	Junior Year Senior Year Senior Year	Course Faculty Employer Course Faculty, Project Team Course Faculty, Project Team	Student – Course Survey Student Grades Faculty Report Post Tenure Review Department Curr. Comm. Advisory Committee
4. Effective use of computer and information technology tools for technical and non-technical applications.	a-f,k	Course Examinations – EEET 321 Network Analysis Course Examination, Projects ECNS 221 PC Data Acquisition & Control	Junior Year Sophomore Year	Course Faculty Course Faculty	Student – Course Survey Student Grades Faculty Report Post Tenure Review Department Curr. Comm. Advisory Committee
5. The ability to analyze and solve technical problems utilizing technological tools and critical thinking skills.	a-f,k	Course Examination – MATH 116 Intermediate Algebra MATH 126 Advanced Algebra MATH 216 Applied Calculus MATH 226 Fourier Series & Appl. Diff. Equ. PHYS 211 EEET 221 Troubleshooting EEET 321 Network Analysis	Per Course Semester	Course Faculty	Student – Course Survey Student Grades Faculty Report Post Tenure Review Department Curr. Comm. Advisory Committee
6. Oral, written, and presentation skills that enable effective communication for their both profession and role within society.	g,i,j,k	Lab Reports and Lab Projects – Most EEET / ECNS courses Project Report, Project Presentation, Project Demonstration – EEET 428 Senior Project Written Assignments and Examination - ENGL 150 English 1 ENGL 250 English 2 ENGL 311 Advanced Technical Writing Oral Assignments (Speeches) and Examination – COMM 121 Fund. Of Public Speaking	Per Course Semester	Course Faculty	Student – Course Survey Student Grades Faculty Report Post Tenure Review Department Curr. Comm. Advisory Committee
7. The ability to function effectively in team oriented projects and situations.	a-k	Student Reports, Employer Reports, Completion - EEET 393 Internship Project Planning Materials, Course Examination - EEET 418 Project Management Project Report, Project Presentation, Project Demonstration - EEET 428 Senior Project	Junior Year Senior Year Senior Year	Course Faculty Employer Course Faculty, Project Team Course Faculty, Project Team, Peers, Presentation Attendees	Student – Course Survey Student Grades Faculty Report Post Tenure Review Department Curr. Comm. Advisory Committee

8. Acceptable ethical and professional behavior.	i,j	Student Reports, Employer Reports, Completion - EEET 393 Internship Project Planning Materials, Course Examination - EEET 418 Project Management Project Report, Project Presentation, Project Demonstration - EEET 428 Senior Project	Junior Year Senior Year Senior Year	Course Faculty Employer Course Faculty, Project Team Course Faculty, Project Team	Student – Course Survey Student Grades Faculty Report Post Tenure Review Department Curr. Comm. Advisory Committee
9. Understand diversity and global issues.	h,i,j,k	Course Examinations and Projects – Social Awareness and Cultural Enrichment	Per Course Semester	Course Faculty	Students – Course Survey Student Grades Faculty Report Department Curr. Comm. Advisory Committee

Assessment Flow Chart



Faculty Course Assessment Report

Course Name and Number: _____Term and Instructor:_____
Catalog Description:

_____
_____
_____

Grade Distribution:

A	B	C	D	F	W	Total

Modifications Made to Course:

1. _____
   _____
2. _____
   _____

Course Outcomes: Upon completion of the course, students will be able to:

1. _____
2. _____
3. _____
4. _____
5. _____

		RANKING				ABET CRITERIA										
CO	Assessment Tool	E	A	M	U	A	B	C	D	E	F	G	H	I	J	K
1																
2																
3																
4																
5																

Student Feedback:

- _____
- _____
- _____

Reflection:

- _____
- _____
- _____

Proposed Action for Course Improvement:

_____
_____

Faculty Curriculum Vitae

Clare Cook

Curriculum Vitae

Clare Cook
Associate Professor
EET & CNS Department
Ferris State University

Educational Background

Associate, Electronic Engineering Technology, Lake Superior State College, 1974

B.S., Electronic Engineering Technology, Lake Superior State College, 1977

Associate, Computer Engineering Technology, Lake Superior State College, 1978

B.S.E., Electrical Engineering, University of Michigan, 1979

M.S., Electrical Engineering, University of Akron, 1985

Professional Experience

September 1987 - present Professor in Electrical/Electronic Engineering Technology
Ferris State University

Full-time teaching in two- and four-year TAC-ABET accredited Electronic Engineering Technology and Computer Networks and Systems program. Primary courses taught: Computer Networking, Microprocessors, Advanced Digital Circuits, Computer Aided Design and programmable devices.
Chairman of EET & CNS Department since January 2007.

January 1980 - August 1987 Assistant Professor in Electronic Technology
University of Akron

Full-time teaching in a two- and four-year TAC-ABET accredited Electronic Technology program. Primary courses taught: Digital Circuits, Microprocessors and Printed Circuit layout. Worked with CAD systems to do auto layout and drilling of printed circuit boards. Also modified the IBM Personal computer to be used as a microprocessor trainer in digital laboratories.

August 1974 - August 1978 Head Electronic Technician/ Chemical Storeroom Manager

Lake Superior State College

Headed repair area for science building which included Biology, Chemistry, Physics, and Electronic Engineering Technology. Main duties included the repair, calibration and demonstration of scientific equipment along with designing and building specialty equipment.

Publications

"A Modular Tool for Small Scale Printed Circuit Board Layout," John Welch, Clare Cook, et.al, at Purdue UPDAEDM Conference, July 1985.

"Circuit Analysis, Simulation, and Layout Using Graphic Workstations in an Engineering Technology Program," Clare Cook at the American Society for Engineering Education North Central Section Conference, April 1990, at the University of Akron.

"Using Electronic CAD Tools in Prototype Design and Fabrication," Clare Cook at the American Society for Engineering Education North Central Section Conference, April 1991, at Saginaw Valley State University.

Electronic CAD Lab Notes, Clare Cook, Ferris State University, 1994.

Contributed to the textbook Handbook of Dimensional Measurement, Third Edition, by Fargo and Curtis, Industrial Press Inc., 1994.

Single Board Computer Construction Using the 80C186EB, Clare Cook, Ferris State University, 1995.

"Teaching Electronic Design Automation Tools Using a Microcontroller System," Clare Cook at the American Society for Engineering Education North Central Section Conference, April 1995, at Ohio State University.

"Electronic Design Automation and Fabrication at Ferris State University," Clare Cook at the American Society for Engineering Education National Conference, June 1996, in Washington D.C.

"Introducing Electronic Design Automation Tools into the Engineering Curriculum," William Chren, Clare Cook, et.al, Journal of Engineering Education, July 1996.

"Connecting Embedded Systems to the Internet," Clare Cook at American Society for Engineering Education National Conference, Albuquerque, NM, June 2001.

" Preparing to Host an ASEE Sectional Conference", Clare Cook at American Society for Engineering Education National Conference, Honolulu, Hawaii, June 2007.

Presentations

"Circuit Analysis, Simulation and Layout Using Desktop Computers," at the American Technical Education Association Conference at Ferris State University, November 1990.

"Electronic CAD with Circuit Fabrication Workshop," three-day seminar offered through Lifelong Learning, two sessions, June, August, 1991.

"Electronic Computer Aided Design (ECAD)" at the Technology and Industry Conference at Ferris State University, March 1992.

Seminar on "Basic Electricity" at the Great Lakes Electric Meter School (GLEMS), August 1990, 94, 95, 96, 97, 98, 99, 00, 01, 02, 03.

Teaching Experience (at Ferris)

Program Area - Related support courses for Plastic Technology - AAS

EET 290 - Electricity for Plastics Technology

Program Area - Related support courses for Energy Management - BS

EM 320 - Solid State Control Circuits

Program Area - Industrial Electronics Technology - AAS

EET 216 - Semiconductor Electronics
IET 226 - Motors and Motor Control
EET 299 - Special Topics in Electrical/Electronics

Program Area - Electrical/Electronics Engineering Technology - BS

EET 312 – Electronic Design Automation
EEET 321 – Network Analysis
EET 325 - Linear Electronics Circuits
EET 375 - Linear Electronics Lab
EET 335 - Advanced Digital Electronics
EEET 393 - Internship
EET 431 - Senior Project
EET 499 - Special Studies Electrical/Electronics
EEET 311 - Linear Electronics with CAD
EEET 412 - Advanced Digital I
EEET 422 - Advance Digital II
EEET 322 - CAD for Electronics
EEET 418 - Project Management
EEET 428 - Senior Project

Program Area - Computer Networks and Systems

ECNS 421 - Embedded Computer Systems
ECNS 323 – Real Time Operating Sytems
ECNS 325 – Control Networks
ECNS 310 – C++ Program Applications
ECNS 311 – High Level Programming
ECNS 410 – Digital Signal Processing

Seminars, Workshops and Training Attended

1988 - Custom Integrated Circuits Seminar at Michigan State University (1 day)

1992 - National Science Foundation sponsored workshop on Integrated Circuit Micro-fabrication at San Jose State University (5 days)

1993 - National Science Foundation sponsored workshop on Electronic Design Automation at the University of Notre Dame (3 days)

1994 - Altera Corporation, seminar on programmable logic devices (1 day)

1995 - Microchip Corporation, seminar on embedded PIC microprocessor (1 day)

1996 - Mentor Graphics Corporation, training on Printed Circuit Board Development at training center in Chicago (5 days)

1997 - Xilinx Corporation, training on newest field programmable gate arrays at Hamiliton-Avnet in Chicago (3 days)

1997 - Mentor Graphics Corporation, training on system administration of Computer networks using Mentor Graphics software (3 days)

1999 - Global Knowledge, training course titled “Understanding Computer Networks” dealing with fundamentals of connecting computer networks (2 days)

1999 – QNX Systems Ltd., training course titled “Photon for Developers: A Hands-on Introduction” dealing with graphical user interfaces to embedded systems (5 days)

1999 – Microchip Corporation, training on embedded microcontrollers in a network

environment. (2 days)

2000 – QNX Systems Ltd. training conference dealing with QNX 4, Neutrino, and Photon (4 days)

2001 – Mentor Graphics Corporation, training on Hardware Description Languages (VHDL) (5 days)

2001 – Mentor Graphics Corporation, training on Design Interface using graphic Design tools (3 days)

2001 – EmWare, Inc., training dealing with Internet connections with embedded Systems titled "EMIT Technical Training" (4 days)

2004,05,07 – Embedded Systems Conference, Training conference for systems And software in the embedded world (4 days)

Related Work Experience

1990 -93

Project: Machine modification to provide automated capsule placement on machine where manual placement was only available.

Industry: Parke-Davis Pharmaceutical Research Division of Warner-Lambert, Ann Arbor.

Scope: Project included mechanical and electrical design and fabrication. A major requirement was to design the modification to allow for both manual and automatic operation.

Responsibilities: Acted as project engineer to coordinate the mechanical design and fabrication while doing the electrical design and compute programming. The project was administered by the Technology Transfer Center of Ferris State.

Grants and Donations

2007 – Xilinx, Inc., Electronic Design Software $2,085.00

2005 – Xilinx, Inc., Electronic Design Software $2,085.00

1997 - Intel Corporation, Computers and Software donation $8,260

1994 - National Science Foundation matching grant for $96,343

1994 - Mentor Graphics Corporation, Software donation, $3,826,475

1993 - Intel Corporation, Computer and Software donation, $9,066

1991 - MicroSim Corporation, Software donation, $111,200

Committee Membership (at Ferris)

University Athletic Advisory Committee
University Student Health Advisory Committee
University Curriculum Committee
Distinguished Teacher Committee
College of Arts and Sciences Math Department Head Search Committee
College of Technology Promotion Committee
College of Technology Dean Search Committee
College of Technology Faculty Council
Co-chair, ASEE Conference Committee
Chair, Department Curriculum Committee
Department Faculty Search Committee
Department Semester Conversion Committee
Curriculum Development and Approval Task Force

Jared DeMott

Jared DeMott
Swan 401
Big Rapids, MI

Office: 231-591-3063
demo1@ferris.edu

Assistant Professor DeMott

Objective

To teach information security, software engineering, and operating system design at a leading University. As always, I am active and current in the security scene. For example, I presented at DEF CON and BlackHat in 2007.

Education

65% Complete — Michigan State University — Lansing, MI

- Ph.D., Computer Science
- Dissertation on Fuzzing.

May 2003 — Johns Hopkins University — Baltimore, MD

- M.S., Computer Science
- Focus Track: Secure Networks and Telecommunications
- GPA 3.975/4.0

May 2000 — Ferris State University — Big Rapids, MI

- B.S., Computer Networks and Systems.
- Minor, Computer Information and Systems.
- GPA 3.85/4.0

Certifications

✓ Cisco Certified Network Associate (CCNA) – 2001

Industry Positions

HBGary, Inc. September 2007 - Present Bethesda, MD

Very Part-time Security Engineer

- Reverse engineering, fuzzing, bug development
- Federal Government (BAA) Proposal writing
- Sales engineering, product demonstrations and documentation, business development, etc.

Applied Security, Inc. Feb 2005 – May 2007 Reston, VA

Vulnerability/Security Researcher

- Led vulnerability analysis on various closed and open source software and appliance packages.
- Researched and develop Fuzzers.

Booz Allen and Hamilton Nov 2003 – Feb 2005 Fort Meade, MD

Consultant: Vulnerability Expert

- Led vulnerability analysis on various telecommunications equipments.
- Helped develop and teach internal hacker curriculum with primary focus on fuzzing and reverse engineering.
- Applied improved vulnerability analysis team to new and existing contracts.

National Security Agency (NSA) May 2000 – Nov 2003 Fort Meade, MD

Global Network Vulnerability Analyst

- Performed detailed vulnerability and penetration tests on various perimeter protection devices.
- Modified US Department of Defense (DoD) facility protection plans based on results.
- Provided other security consulting to critical DoD networks as needed.

Academic Positions

Ferris State University August 2007 - Present Big Rapids, MI

Fulltime Tenure Track CNS/EET Faculty

- Develop and successfully teach classes such as C/C++, Intel Architecture, Computer Security, Wireless, etc.
- Help FSU mature its CS offering to include a stronger security component.

Entrepreneur

VDA Labs, LLC. May 2007 - Present Rockford, MI

Founder and Researcher (Summer work)

- Lead vulnerability analysis on various closed and open source software and appliance packages.
- Develop tools for client engagements such as custom fuzzers, software exploits, etc.
- Reverse engineer software in search or support of discovered bugs
- Presented fuzzing research at Black Hat and DEFCON
- Competed and won in DEFCON hacking contest (on the I@stplace team)
- Just finished a fuzzing book with Ari Takanen and Charlie Miller. Due out June 2008.
- For further information see: www.vdalabs.com
  - Writing examples – white papers
  - Software Development examples – GPF/EFS
  - Bug disclosures

Competencies:

Teaching, leading, writing, reading, business development, ethical hacking, penetration testing, source code auditing, software testing, malware analysis, general network/computing security, firewalls, routers/switches, modern operating systems (*inx, XP, Vista), TCP/IP networking, programming, Visual Studio, C/C++, python, perl, shell scripting, C#, shellcoding, IDA pro, ollydbg/ID, windbg, kernel exploits, and reverse engineering userland or kernel applications.

Keith Jewett

I. Vitae

A. Name: Keith R. Jewett

Rank: Associate Professor

Tenure/Non-Tenure: Tenure

Department or Division: College of Technology - Electrical/Electronics Engineering Technology & Computer Networks and Systems

Teaching Experience:
Areas of Involvement (in teaching)

1976 – 1996: United States Navy: 5+ years of instructor duty and 6+ years of shipboard training responsibility in the Naval Nuclear Power Program. Master Training Specialist.

1996 – 1998: Ferris State University, Instructor (Adjunct): Basic Internet, Principles of Information Systems, Introduction to UNIX, Microcomputer Hardware Support, Advanced Internet (Masters), Survey of Information Systems (Masters), Hardware/Software (Masters).

1998 – 2001: Ferris State University, Assistant Professor: UNIX for Managers (Masters), Introduction to Programming, Microcomputer Hardware Support, Telecommunications, Introduction to UNIX, Hardware/Software (Masters), Principles of Information Systems, Advanced UNIX.

2001 – 2008: Ferris State University, Associate Professor: IET Technical Preparation, C/C++ Programming Applications, High Level Programming, Electrical Circuits II (AC), Networks I-IV (Cisco), Network Theory and Test, Digital 1, Wireless Networks, Real Time Operating Systems, Special Studies in ECNS.

B. Education Background

1998 M.S., Ferris State University
Major: Information Systems Management

1995 Associate Diploma, Government Institutes, Inc.
Major: Environmental, Health & Safety

1986 B.S., New School for Social Research
Major: Human Resources Management

C. Prior Experience not in Education

1976 – 1996: United States Navy: Submarine Nuclear Propulsion Plant Supervisor, Nuclear Propulsion Plant Maintenance Supervisor – Electronics. Last Position Held: Drug and Alcohol Program Advisor and Hazardous Waste Coordinator. Security Clearance: Top Secret.

1995 – 1996: A World of Difference, Charleston SC: Webmaster.

1993 – 2008: Independent Computer Consultant, programming and networking.

1996 – 2002: MultiMag, Inc, Reed City MI: Production Manager.

D. Professional Memberships

International Alliance of Teacher Scholars, Inc.
TechProGuild.
I.E.E.E. (Institute of Electrical and Electronic Engineers)

E. Professional Meetings Attended

Internet World Summer ’97.
MACUL, 2001.
COMDEX, 2001.
Cisco Networking Academy Conference, 2007.

F. Papers Presented

Presented a paper on "Teach Your Students How to Build Their Own PC" at Michigan Association for Computer-Related Technology Users in Learning 2001: A Tech Odyssey in Detroit on March 16, 2001.

G. Publications

None.

H. Other Research Activity

None.

I. Consulting

Computer system design consulting for Peter S. VanDeMark, M.D. Internal Medicine.

Computer system design consulting for Family Optometric Centers.

Website (database) design, programming and maintenance for RMLS Multi-List (www.realestate-mls.com).

J. Professional Growth Activities

Attendance at numerous seminars and workshops including: Grant Writing for New Faculty, Legal Issues for Educators Panel Discussion, and Extended Orientation Program for New Faculty Training conducted by the Center for Teaching, Learning, and Faculty Development (including training on: Teaching Styles, Teaching in a Lab Setting, Integration of Study Strategies Teaching Critical Thinking Skills and Asking the Right Questions, How College Students Learn Cognitive Theories and Learning Styles, Academic Advising, Strategies for Evaluating Teaching Effectiveness, Questions to Promote Discussion Critical Thinking and Metacognitive Development, Use of Media Tools/Internet in Teaching, Grant Writing/Scholarly Writing, and Diversity and Teaching).

Lilly West Conference on College & University Teaching.

Understanding Voice/Data Communications, Alexander Hamilton Institute Incorporated, 1998.

Telecommunications Technologies for the Non-Engineering Professional, Data-Tech Institute, 1998.

Reading of related professional materials published by T.H.E. Journal, Performance Computing, Network Magazine, PC Week, Enterprise Solutions, Electronic Systems Technology & Design, Computer Technology, Intelligent Enterprise, Computer Telephony, InTelligence, ComputerWorld.

Consulting activities.

CCNA (Cisco Certified Network Associate) and CCAI (Cisco Certified Academy Instructor) certified.

K. Seminars, Training Programs, etc., Conducted for Business and Industry

None.

L. Professional Presentations, Speeches, etc.

Presented a paper on "Teach Your Students How to Build Their Own PC" at Michigan Association for Computer-Related Technology Users in Learning 2001: A Tech Odyssey in Detroit on March 16, 2001.

M. Institutional Services Performed

Campus-Wide Committees: University Committee on Discipline, University Committee on Security Management, Academic Senate, Senate Student Life Committee, Senate Health Promotion and Substance Abuse Prevention Committee, Academic Affairs Representative to Banner Data Security Team, Radiation Safety Committee, Senate Executive Committee.

College-Wide Committees: With College of Business: Computer Usage Committee, Recruiting and Retention Committee.

Department-Wide Committees: With CIS/College of Business: Academic Program Review Panel, Online Standards Committee, Summer Computer Institute Planning Committee.
With EEET & CNS: CNS Program Curriculum Development, Tenure.

Other: With CIS/College of Business: Advisor to the Computer Information Systems Association (C.I.S.A.) Student Association.
With EEET & CNS: Advisor to the Student IEEE Association.

N. Recognition and Honors

Memos of Recognition from President Sederburg for being singled out by students as a faculty who "made a difference."

Recipient of "2001 Outstanding Student Affairs Partner Honoree" award.

O. Professionally Related Community Activities

Serve on Advisory Committee for the Mecosta-Osceola Career Center

II. Educational Background to document graduate course work in the field of Computer Networks and Systems to support doctoral level preparation.

The following specific courses are presented to document graduate course work in the field of Computer Networks and Systems / Telecommunications sufficient to support doctoral level preparation:

A. Coursework taken as part of Ph.D. in Organization and Management (Emphasis in Communications Technology) from Capella University:

1. Survey of Research Methodology (4 credits)
2. Computerized Management Information Systems (4 credits)
3. Special Topics in Organization and Management (36 credits)
4. Survey of Research in Organization and Group Dynamics (4 credits)
5. Network Technology (4 credits)
6. Telephony I (4 credits)
7. Network Management (4 credits)
8. Strategic Planning (4 credits)
9. Ethics and Social Responsibility (4 credits)
10. Marketing Strategy and Practice (4 credits)
11. Accounting and Financial Management (4 credits)
12. Proseminar (4 credits)
13. Introduction to Object-Oriented Design (4 credits)
14. Fundamentals of E-Business (4 credits)
15. Introduction to Digital Transmission (4 credits)

III. Teaching Experience sufficient to document doctoral level expertise

Curriculum development activities include the following: Participating in the academic program review of the Computer Information Systems degree program, participating in the new Computer Information Systems major, participating in the new Management Information Systems major.

Course development activities include the following: Leading the conversion of ISYS 300 (formerly ISYS 405), ISYS 310, and ISYS 350; and new course development of ISYS 275 (formerly ISYS 369), ISYS 325, and ISYS 375.

Courses taught include the following: Basic Internet, Principles of Information Systems, Introduction to UNIX, Microcomputer Hardware Support, Advanced Internet (Masters), Survey of Information Systems (Masters), Hardware/Software (Masters), UNIX for Managers (Masters), Introduction to Programming, Telecommunications, Advanced UNIX, IET Technical Preparation, C/C++ Programming Applications, High Level Programming.
.

Teaching techniques include the following: Emphasizing active learning by employing a variety of techniques, including teams, portfolios, student presentations of research projects, web site development projects, discussions of current events related to course opportunities for self analysis and application of course concepts; employing "hands-on" processes and assignments including computer construction; inviting guest speakers; organizing field trips; supervising independent studies for academic credit.

IV. Documented Practical Experience

CCNA (Cisco Certified Network Associate) and CCAI (Cisco Certified Academy Instructor) certified.

V. Consulting Experience

Consulting experience ties into teaching in the classroom as follows: computer consulting for various companies directly relates to the classroom experience in that it allows the instructor to bring into the classroom the processes, techniques, experiences, and the like of real-life organizations – specifically current state of the UNIX platform, PC hardware, and Networks.

VI. Scholarly Activity

None.

Warren Klope

Prof. Warren Klope

231-796-5567
klopew@creaven.com

11930 183rd Avenue
Big Rapids, Michigan 49307-9461

Title	Professor
Position	Tenured faculty member instructing in the EET & CNS Department in the College of Technology at Ferris State University.

Highlights	• Master of Science – Major: Systems & Industrial Engineering – Oakland University	04/1987
	• Bachelor of Science – Major: Engineering, Concentration: Systems – Oakland University	06/1977
	• Full Professor in Electrical/Electronics Engineering Technology since:	08/2003
	• Tenured Faculty in Electrical/Electronics Engineering Technology since:	09/1992
	• Teaching college level courses in Electrical/Electronic Engineering Technology since:	09/1987
	• Full-time industrial background from automotive and defense industries during:	1977-85
	• Leadership – successful in bringing people from differing perspectives together to accomplish common goals while serving as Dept. Chair /Programs Coordinator	01/2000 - 08/2001
	• Demonstrated diligence, creativity, and effectiveness in coordination and implementation of project/programmatic goals (design, budget and schedule) in industry and education.	1984-present
	• Service to the University in a variety of capacities. Currently serving on the: Academic Senate, Academic Policies & Standards Committee, College Curriculum Committee, Department Curriculum Committee, and three tenure committees. Formerly served as: Academic Senator (multiple terms); Information Officer on the Senate's Executive Committee; Academic Vice President Search Committee; as chair of the faculty search committees; as well as other various committees. Teach and assist fellow faculty with developing online course material via WebCT and Respondus through the Faculty Center for Teaching Learning.	1987-present

Professional Experience	Ferris State University, Big Rapids, MI	08/2003 -present
	Full Professor – Electrical/Electronics Engineering Technology & Computer Networks and Systems Department (EET & CNS Dept.)	
	Summary: Provide leadership for the Department's junior faculty and students. Mentor newer faculty. Undergraduate students instructed in principles and applications for: automation, electronics, computing, and project management. BSEET program is TAC-ABET accredited. Advised students academically, provided continuing program refinement, developed lecture/ laboratory instructional material, and served on administrative and academic committees.	
	Achievements	
	• Successfully completed the professional development grant for upgrading my knowledge of LabVIEW to version 7.1.(06/2005-08/2005)	
	• Introduced (04/2004) and continued (04/2005) the Trade/Professional show format as the environment in which students presented their senior project. Booths were staffed by the students to represent their project to hundreds of persons attending the show on campus. The students also presented their project in a seminar room nearby at schedule times much like vendors at a Trade/Professional show. A full written report regarding the project was available at the booth as well as seminar sessions. The vast majority of the evaluation of the senior's project rested on the success of their project and their presentations. The show was also used as a marketing effort to stimulate interest in show attendees for the electrical / electronics and computer and networks fields. The general public, industry professionals, the campus community, and area career centers were invited to attend the show. I invited the Mechanical Engineering Technology group to join us as show presenters and they accepted. I have suggested to upper administration that the show be widened to a campus wide senior projects show and become part of the marketing effort of the university.	
	• Successfully completed a sabbatical regarding computer-based: measurement (data acquisition), data storage and retrieval, data analysis, for measurement and automation.. (08/2002-08/2003)	
	• Have become a resource person to the Faculty Center for Teaching and Learning for developing online learning policies, WebCT course development (primarily in the evaluation portion). I also teach other faculty how to utilize Respondus as part of the creation of evaluation questions in WebCT.	

Ferris State University, Big Rapids, MI	03/2000 - 08/2001
Department Chair and Associate Professor – Electrical/Electronics Engineering Technology & Computer Networks and Systems Department (EET & CNS Dept.)	
Summary: Provide leadership for the department and its degree programs, faculty, and students. Responsible and accountable for the overall functioning and operation of the department.	
Duties: Direct and coordinate the efforts of all members of the department, including faculty, staff, and students. Administer approximately 75% and teach approximately 25%. Faculty/staff evaluation process; developmental activities including curriculum development; budget maintenance, planning, and expenses; department planning; compile administrative and curricular reports; administer industrial advisory committees; develop and administer marketing and recruiting activities; develop and assign schedules; develop in-kind donations; summer orientation for incoming fall students; prospective student advising; departmental student payroll.	
Achievements • Successfully won the case for the renovation of SWN 4th floor (EET & CNS Dept.'s floor). This was a $350,000 commitment by the President and the Board of Trustees of the University. This was successfully accomplished through the FSU budgetary process. (2000 – 2001). My successor as Chair of the Dept. had the privilege of spending the money to renovate the floor. • Simplified our scheduling while improving the course offerings by our Dept. to related programs in the College of Technology (HVACR, Mechanical, Welding, Plastics, Manufacturing, Product Design). I initiated the process to consolidate several nearly identical courses into three courses.	
Ferris State University, Big Rapids, MI	01/2000 - 03/2000
Program Coordinator – Electronics & CNS Group (Subset of Dept Chair duties above. Group was elevated to full department stature in 2000)	

Ferris State University, Big Rapids, MI	08/1987 -present
Tenured Assist. (09/1992) then Assoc. (Fall 1995) Professor– EET & CNS Dept.	
Results: Undergraduate students instructed in principles and applications for: automation, electronics, computing, and project management. BSEET program is TAC-ABET accredited. Advised students academically, provided continuing program refinement, developed lecture/ laboratory instructional material, and served on administrative and academic committees.	
Achievements	
• Fall 1999 and 2000 (unanimously) was voted by fellow Senators to serve on the Academic Senate Executive Board..... 04/1999, 04/2000	
• Elected by peers to serve on the Academic Senate.08/1996-04/1998 and 08/1	
• Successfully introduced: evening help sessions, a course operating procedure manual, student employee-run open labs, tagged equipment repair and calibration.....08/1987-present	
U.S. Army Tank & Automotive Command, Warren, MI	03/1984 - 09/1985
Mechanical Engineer / Project Engineer – Concepts Laboratory	
Results: Administered the engineering design, development and advance technical support for the "Tank Test Bed"(TTB) combat vehicle from conceptual phase through advanced development. Principal effort: provided coordination of the test planning and testing for the TTB between the prime contractor, other Department of Defense (DOD) test agencies and the U.S. Army user- agency. Performed briefings and presentations necessary for accomplishing project and agency goals.	
Achievements:	
• Significantly aided the Weapon System Manager in successfully defending the cost effectiveness of the TTB before Congressional Staff and DOD reviewers.	
• Initiated the command's first "three-degree of freedom" motion simulator for large masses.	

U.S. Army Tank & Automotive Command, Warren, MI	06/1981
Mechanical Engineer / Programmer – Computer Management and Applied Research Office	- 03/1984
Results: Determined user-client's needs for motion simulation, developed needed real-time algorithms, encoded algorithms and checked the systems performance. Provided simulated rides and gun recoil for Human Engineering's test efforts. Efforts done as part of a small team.	
Chrysler Defense Corporation, Centerline, MI.....	07/1980
Computer Programmer	- 10/1980
Results: Established a tracking system for controlling the use of global variables that were accessed by multiple programmers. Principal effort: developed and implemented user-interface.	
Chrysler Corporation, Highland Park, MI	08/1979
Engineer, Test & Development II – Digital System Applications	- 04/1980
Results: Implemented real-time software programs on minicomputers for data acquisition & processing, and process control. Principal effort: upgrading a three-dimensional clay digitizer and an automated lamp test system.	
Chrysler Corporation, Highland Park, MI	08/1977
Engineer in Training – Chrysler Institute of Engineering (one of 13 selected from across the nation for the entering class)	- 08/1979
Results: Studied automotive industry specific subjects through Institute courses. Studied graduate courses in Electronics through local universities. Gained corporate and departmental experience by working three-month intervals in Steering & Suspension Development, Safety & Security, Electronic Controls, Motech (Chrysler's automotive technician training center), Truck Plant Resident Engineering, Truck Product Planning, Technical Systems Development, and Digital Systems Applications.	

Ronald A. Mehringer

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Big Rapids, MI 49307
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E-mail: mehrinr@ferris.edu

Professional Objective

My personal and professional objective is to be the best teacher that I can be. I will always strive to provide my students with a learning centered education that will prepare them with the skills and knowledge that they will need to be successful. I will always continue my educational and professional development to ensure the quality of the education that I provide to my students,

Education

Master of Science, Industrial Engineering, University of Pittsburgh, Pittsburgh, PA

Master of Science, Electrical Engineering, Carnegie Mellon University, Pittsburgh, PA

Bachelor of Science, Electrical Engineering, Case Western Reserve University, Cleveland, OH

Teaching Experience

Assistant Professor, EET & CNS Department, College of Technology, Ferris State University, Big Rapids, Michigan, 2004 to present.

Developed and Taught EEET-111 Mobile Robots

Taught the following:

EEET-114 Electric Circuits 1

EEET-124 Electric Circuits 2

EEET-115 Electronics for HVAC/R

EEET-201 Electrical Fundamentals

ECNS-125 Networks 2

EEET-224 Industrial Automation and Controls

Professional Societies

Member of Association of Engineering Educators (ASEE)

Member of the Institute of Electronic and Electrical Engineering (IEEE)

Additional Educational Studies

Doctor of Philosophy (Not Completed), Electrical Engineering, University of Pittsburgh, Pittsburgh, PA – Course work completed and comprehensive examination passed, dissertation (not completed) investigated laser beam combination utilizing Brillouin scattering

Cisco Systems, Inc. CCNA Instructor Training, Davenport University

CCNA1, CCNA2, CCNA3 and CCNA4 completed.

Faculty Center for Teaching and Learning (FCTL) WebCT Instruction

Faculty Center for Teaching and Learning (FCTL) Learning Institution Seminars

Ferris State University Seminar (FSUS) Training Program

FerrisConnect Training by FerrisConnect Training Committee

Independent Study in Physics – I have pursued many areas of physics through a program of independent study and research. My main areas of interest include quantum mechanics, general relativity, photonics, quantum field theory, mathematical physics and quantum electronics.

University Associations

Former Member of the University Professional Development Committee

Member of the University Committee on Discipline

Member of the University Academic Policy and Standards Committee

Member of the Institutional Strategic Planning Council

Member of the Academic Program Review Council

Chairperson of the Curriculum Committee for the EET/CNS Department

Awards

2005 Recipient of Ferris Foundation Exceptional Merit Grant

Referred Publication

"A Statistical Description of Stimulated Brillouin Scattering Beam Combination Efficiency," Raijun Chu, Xuelei Hua, Ronald Mehringer, Paul Suni, Morton Kanefsky and Joel Falk, IEEE Journal Of Quantum Electronics, Volume 28, June 1992.

Research Paper

"A Brief Discussion of the Analogy between Gravitational Field Theory and Electromagnetic Field Theory," Ronald A. Mehringer, PhD Application Paper submitted to and accepted by the Doctoral Candidate Acceptance Committee at the University of Pittsburgh.

Research Studies

1. Participated in research at the University of Pittsburgh that investigated the mutual coherence between two stimulated Brillouin signals produced by undepleted pump beams that are partially overlapped and the statistical properties of the mutual coherence at the University of Pittsburgh with Dr. Joel Falk, Dr. Morton Kanefsky, Raijun Chu and Paul Suni.

Professional Conferences

Lilly West Conference on Teaching and Learning, Pomona, CA, 2005.

Industrial Experience

Vice President, Marshall Electronics Division, Pittsburgh, PA

Project Manager, Marshall Electronics Division, Pittsburgh, PA

Field Service Engineer, Marshall Electronics Division, Pittsburgh, PA

(Marshall Electronics Division manufactures industrial communications systems, data transmission systems, factory automation systems and remote control systems)

Industrial Project Experience

1. Designed transmission tower elevator control and communications systems for special manlift systems in tower structures up to 2,000 feet tall.
2. Designed embedded controller systems for automated applications including real time robotic and vehicle control.
3. Designed and implemented an automated warehouse system for Caterpillar in Peoria, IL and Lands' End in Dodgeville, WI.
4. Designed and implemented a remote control and monitoring system for emergency ventilation fans in the New York City subway system.
5. Designed and implemented several communications systems for Formosa Plastics Corp. in Taiwan, ROC.
6. Designed and implemented a remote control system for an overhead crane used on the Semac II, an oil pipe-laying vessel in the North Sea.
7. Designed and implemented a remote control system for overhead transport cranes used by Amoco Oil in Texas.

References

Professor Ronald A. McKean, Associate Dean
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Ferris State University
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Dr. Joel Falk, Chair, Electrical Engineering Department
University of Pittsburgh
348 Benedum Hall
Pittsburgh, PA 15261
412-624-8000
eedept@ee.pitt.edu

Mr. George W. Dillon, Vice President
Westinghouse Nuclear Services Operations
PO Box 355
Pittsburgh, PA 15230-0355
412-374-3700
dillongw@westinghouse.com

Robert Most

2829 E. Siebert Rd., Midland, MI 48642
Residence: 989-839-8477 Email: robertmost@ferris.edu

EDUCATION

Master of Science, Electrical Engineering, Cornell University, Ithaca, NY 1988
(Admitted into in PhD program, full Research Assistantship)
Bachelor of Science, Electrical Engineering (5 year + Thesis),
GMI Engineering and Management Institute, Flint, MI 1987

PROFESSIONAL EMPLOYMENT HISTORY

FERRIS STATE UNIVERSITY 2004-Present
Assistant Professor (tenure track), College of Technology, Electronics / CNS Department

SAGINAW VALLEY STATE UNIVERSITY 1999-2004
Adjunct, Faculty Member, Department of Electrical and Computer Engineering

ALAMANDO ENTERPRISES 1999-Present
DBA, Self-employed Electronics Consulting

DOW CORNING CORPORATION 1996-2004
1988-1990
Associate Engineering Specialist 2001-2004
Senior Project Engineer 1996-2001
Electrical Engineer 1988-1990

SAGIAN CORPORATION 1994-1996
Lead Hardware Engineer

THE DOW CHEMICAL COMPANY 1990-1994
Senior Research Engineer

GENERAL MOTORS CORPORATION, OLDSMOBILE DIVISION 1982-1987
Cooperative Education Student, Engineering

SELECTED ACCOMPLISHMENTS

UNIVERSITY:

- Member of the Faculty Center for Teaching and Learning's Faculty Advisory Group (member since 11/2006).
- Ferris State University Student Judicial Services faculty (volunteer since 9/2006).
- FSU Grant Writing Workshop (1/2006)

COLLEGE OF TECHNOLOGY:

- COT Curriculum Committee member (appointed 8/2007).
- Recipient of Timme Funding for the Embedded Systems Conference (4/2007).
- Recipient of a Faculty Development Grant for the Embedded Systems Conference (4/2007).

EET/CNS DEPARTMENT:

- EET/CNS Academic Program Review Chairman (since 3/2007).
- EET/CNS Curriculum Committee member (since 1/2005).
- Webmaster / creator of http://www.seniordesignprojects.com

TEACHING EXPERIENCE:

- ECE-355 **Microprocessors I (SVSU)**
  - Authored 12 original labs
- FSUS-100 **Freshman Seminar**
- EEET-124 (Lab)
- EEET-210 **Electronic Communications**
  - Authored 13 original labs
- EEET-211 **Electronics**
  - Authored 10 original labs
- EEET-212 **Digital Electronics II**
  - Authored 12 original labs
- EEET-221 **Troubleshooting**
  - Authored 10 original labs
- EEET-222 **Microprocessor Applications**
  - Authored 13 original labs
- EEET-411 **Advanced Communications I**
  - Authored 12 original labs
- EEET-418 **Project Management**
- EEET-422 **Advanced Digital Design II**
  - Authored 10 original labs
- EEET-428 **Senior Design**

PATENT DISCLOSURES:

1. Hardware Driving Scheme for Flexible Printable Electrochromic Displays, Aveso Inc., 2005.
2. Planar Pixel Timers Using Electrochromic Ink, Aveso Inc., 2005.

EXTERNAL PUBLICATIONS:

1. Hall Effect IC Doubles as Spark Detector, **Electronic Design**, (pending)
2. Circuit Provides Synchronization for Flashing LEDs, **Electronic Design**, October 28, 2004
3. Plasma Impacts to an Oxygen Doped Silicon Carbide Low-k Barrier Film, **Journal of the Electrochemical Society**, (co-author – August, 2004)
4. Circuit Provides 4-20mA Loop for Microcontrollers, **EDN**, May 27, 2004
5. Scalable Latch Requires no Capacitor or Clock, **EDN**, August, 2004
6. Hall Effect IC Doubles as Spark Detector, **Electronic Design**, (under review)
7. The Physics of Dielectric Films, **Semiconductor International**, June 2004
8. Single Diode Increases Bandpass Filter's Q, **Electronic Design**, October, 2000
9. Pyroluminescent Regulometer, **Saginaw Valley State University**, ECE-355 Design Paper, March, 1999
10. C Routine Reads Values from 3 Wire Serial A/Ds, **Electronic Design**, January 1995
11. AM Radio Transmission, **Modern Electronics**, March, 1991
12. Program Calculates BPF Component Values, **EDN**, May 1989

13. Circuit Selects Single or Multiple Lines, **EDN**, September 1987
14. Using Current Differencing Operational Amplifiers, **Modern Electronics**, September 1987
15. TTL Master Mind Game, **Electronics Special Projects** Radio, June 1985
16. TTL Slot Machine Game, **Radio Electronics Special Projects**, December 1983
17. TTL Laser Game, **Radio Electronics Special Projects**, March 1983
18. CMOS Plant Water Gauge, **Radio Electronics**, January 1981

INTERNAL PUBLICATIONS:

1. Analysis of Dielectric Stacks on Semiconductor Wafers, **Dow Corning** TIS Report 2004-I0000-53778, 2004
2. Dielectric Spectroscopy of Amorphous Hydrogenated Silicon Carbide Thin Films, **Dow Corning** TIS Report 2004-I0000-53687, 2004
3. Measurement of Thin Film Dielectric Properties, **Dow Corning** TIS Report 2003-I0000-53016, 2003
4. Analysis of Parasitic Capacitive Effects in Measuring Dielectric Constant for Series MIS Capacitor Structures, **Dow Corning** TIS Report 2002-I0000-52167, 2002
5. Application Guide for Process Control Equipment Grounding, **Dow Corning** EMTN 16.020.003, June 1998
6. Facilities Engineering Process Information and Control Design Criteria, Dow Corning EMTN 13.403.004, January 2000
7. CAMILE TG Hardware Port I/O Board Level Design 32 Channel Analog Input, **Dow Chemical**, Central Research report CREL-435, 1994
8. CAMILE TG Hardware Port I/O Board Level Design Multisensor Analog Input, **Dow Chemical**, Central Research report CREL-434, 1994
9. CAMILE TG Hardware Port I/O Board Level Design 32 Channel Digital Input/Output, **Dow Chemical**, Central Research report CREL-433, 1994
10. CAMILE TG Hardware Port I/O Board Level Design 8 Channel Analog Output, **Dow Chemical**, Central Research report CREL-432, 1994

THESES:

1. Application of the TMS320C25 Digital Signal Processor to Doppler Shift Ultrasonic Fluid Flow Measurements, **Cornell University** Master's Thesis, 1988
2. Maintenance of Equipment Using Vibration Analysis, **GMI** 5th Year Baccalaureate Thesis, 1987
3. The Electrical Engineer's Toolbox, **GMI** supplemental 5th Year Thesis, 1987

EXTRACURRICULAR ACTIVITIES

- Textbook Review Panelist: Communication Electronics, Louis E. Frenzel - McGraw-Hill Science, ISBN: 0028048377 (2006)
- Embedded Systems Conference (3/2007, 1992)
- Instrument Society of America Conference (1991, 1993)
- Pittsburg Conference (1993)
- Society of Automotive Engineers Conference (1992)
- Analog Devices Seminar (1990, 1991, 1993, 1995, 1998, 2004)
- National Semiconductor Seminar (1992, 1994, 1998, 2003)
- Microchip Seminar (1990, 1995, 1997, 2001, 2004)

- Linear Technology Seminar (1996)
- Xilinx Seminar (1995)
- Altera Seminar (1990, 1993)

AWARDS

- 2003 – Dow Corning – Project Engineering Special Recognition Award
- 1992 – Dow Chemical Special Recognition Award – Central Research Engineering Laboratory
- Electronic Design Magazine– Best Design Idea 1995 "C Routine Reads Values from 3 Wire Serial A/Ds"

ADDITIONAL SELECTED ACCOMPLISHMENTS

PROJECT ENGINEERING

- Led capital project engineering team that designed, procured and installed electrical, instrument and process control automation equipment resulting in streamlined operations, reduced environmental emissions and a corporate award for supply chain excellence.
- Designed automation infrastructure and written specifications for automating a line of batch mixers resulting in a 30% improvement in up-time, new data trending and analysis reducing the need for 1 operator.
- Implemented a newly standardized Safety Instrumented System (SIS) for autonomous and redundant process safety shutdown automation for OSHA targeted hazardous plants, which resulted in governmental compliance and reduced environmental risks.
- Authored corporate-wide design criteria for process automation, which eliminated duplication of effort between manufacturing sites standardizing materials and methods applied.

ELECTRONICS ENGINEERING AND RESEARCH

- Designed circuits and firmware for a new generation of data acquisition and control products, which resulted in increased market base and improved applications' speed by 10 times generating $1 MM in sales.
- Developed a standard test methodology for dielectric spectroscopy of thin film PECVD materials which resulted in a never before seen correlation between dielectric constant and refractive index change over time.
- Constructed a heater control system for liquid delivery of a low-K PECVD precursor in a clean room environment that provided uniform film deposition and properties.
- Implemented an in-circuit reprogrammed FLASH-EPROM based circuit for data acquisition boards, which resulted in elimination of manual calibrations and enabled customers to automatically download the latest software without the need of a service call.
- Designed, tested and prototyped a battery operated variable frequency power supply used in a privacy glass product, which enabled marketing personnel to take functioning samples directly to customers.

Gary Todd

Gareth B. Todd
19179 Reynolds Road
Hersey, Michigan
Office Phone: 231-591-5041 Home Phone: 231-832-9302
email: toddg@ferris.edu

Summary of Qualifications

Twenty-one years of industrial, defense contract, and education experience combining university curriculum development, industrial training, preventative maintenance, administrative duties; and consulting in education, industry, and the military. Bringing technology into the classroom with on-line class information, software enhanced lectures, WebCT sessions, and Interactive Television.

Education

Western Michigan University
Kalamazoo, Michigan
Admitted, Educational Leadership Ph.D. Program (2002)

Northern Michigan University
Marquette, Michigan
M.S. Training and Development (2001)

Aviation, Flight School
Greenville, Michigan
Commercial Pilot – Instrument, Single Engine, Land (1991)

Northern Michigan University
Marquette, Michigan
B.S. Industrial Technology (1986)

Certifications

Certified Fluid Power Industrial Hydraulic Mechanic (CFPTIHM), Fluid Power Society.
General Class Amateur Radio Operator
Certified Ground Instructor (Aviation)
Commercial Class, Instrument Pilot, Single Engine, Land

Professional Development

Courses/Training

- American Society for Engineering Education (ASEE) conference on Educating Engineers for a Sustainable Future (2007)
- Alternative Energy Conference (2006)
- Accreditation Board for Engineering and Technology (ABET) Program Evaluator Training (2006)

Courses/Training (continued)

- Rockwell Automation, Network/Netlinx Strategies (2005)
- ABET TC 2000 Assessment Training and Capstone Conference (2005)
- Rockwell Automation Technology on the Move (2005)
- National Instruments, Labview (2004)
- National Instruments, Labview (2003)
- Rockwell Automation, RSLogix 5000 (2003)
- Accreditation Board for Engineering and Technology (ABET), Test Criteria 2000 (TC2000) Assessment Workshop (2002)
- Rockwell Automation, Control Logix (2002)
- CompuMasters, Optimizing web page design. (2001)
- Rockwell Automation, Control Logix Programmable Logic Controller Operation and Programming. (2000)
- General Electric, Industrial Electrical Power Distribution Systems and Protective Devices. (2000)
- Foxboro, Distributed Control Systems, (2000).
- Fluid Power Society, Certified Fluid Power Industrial Hydraulics Mechanic Certification Seminar, (2000)
- Rockwell Automation, Industrial Drive Systems, (1999)
- Scholarship of Education Participatory Discussion, (1999)
- Vickers Fluid Power Training, (1998)
- Web Page Design, Northern Michigan University, (1997)
- Rockwell Automation PLC (Automax) Training, (1997)

Memberships

- Institute of Electrical and Electronics Engineers (IEEE)
- Instrument Society of America (ISA)
- American Society of Engineering Education.
- Accreditation Board for Engineering and Technology (ABET)
- Aircraft Owner's and Pilot's Association.
- Industrial Automation Student Association (IASA).
- Michigan Education Association member, Ferris Faculty Association.

Honors/Volunteer Work

- Isle Royale National Park, volunteer reconstruction of fisheries for park preservation (2006)

- Isle Royale National Park, volunteer reconstruction of historical structures for park preservation (2005)
- Marquette County Fair Grounds, volunteer construction of a commercial building for 4-H auctions and activities (2005)
- Isle Royale National Park, asset assessment, Department of the Interior (2003)
- Isle Royale National Park, volunteer construction for park improvement (2002)
- Naval Citation, Facilitating On-Time Installation of a Landing System. (1991)

Honors/Volunteer Work **(Continued)**

- Achievement Award, Textron Defense Systems (1991)
- Presidents Achievement Award, Bell Aerospace Textron (1989)
- USS Washington, Honorary Commissioning Crew Member (1988)
- USS Lincoln, Honorary Commissioning Crew Member (1987)

Publications

Published Reports

Seventeen published reports were produced during a research period while employed by Bell Aerospace Textron. These reports are of various states of development and testing of the Automatic Carrier Landing System (AN/SPN-46) aboard the USS John F. Kennedy (CVA-67). The reports date from August of 1988 to February of 1989 and were published for the government agency NAVELEX/SPAWAR under company letters of authorization. An example is shown below and a complete list (in addition to each complete publication) is available upon request.

Todd, Gareth (1988, August), USS John F. Kennedy Research Trip Summary. Buffalo, New York: Bell Aerospace Textron. (Report Number: 8225-02 Under Company Letter: 8:1718)

Procedures and Manuals

Standby Power Generation Maintenance Training Examination (Electrical Component), Electrical Generation Society of America, Boca Raton, FL (2006)

PLC Networking on the Plant Floor, Ferris State University, Big Rapids, Michigan, (2003).

Industrial Motion Control Laboratory Procedures, Ferris State University, Big Rapids, Michigan (2002).

Process Control Laboratory Procedures, Northern Michigan University, Marquette, Michigan (1998)

Final system check-out and Acceptance Procedure, Textron Systems (formerly Textron Defense Systems), Lowell, Massachusetts (1992).

System Check-out Procedure, Bell Aerospace Textron, Buffalo, New York (1989)

Factory Test Equipment (FTE), Software and Operating Manual, Radar/Ship Motion Sensor, Bell Aerospace Textron, Buffalo, New York (1988).

Factory Test Equipment (FTE), System Operation Manual, Bell Aerospace Textron, Buffalo, New York (1988)

Procedures and Manuals **(Continued)**

Software Operation Documentation, Flight Control Module, Bell Aerospace Textron, Buffalo, New York (1987).

Papers, Presentations, and Workshops

Programmable Logic Controllers and Drive Systems, Pittsburg Paint Group, Evart, Michigan (2005)

Industrial Maintenance, Rexair, Four Winns Boats, and Borg Warner, Cadillac, Michigan (2005)

National Electric Code Interpretation, Rexair, Four Winns Boats, and Borg Warner, Cadillac, Michigan (2005)

Industrial Maintenance Training, General Mills – Yoplait, Reed City, MI (2005)

Electronic Fundamentals – Semiconductors and Devices, Rexair, Four Winns Boats, and Borg Warner Cadillac, Michigan (2004)

Pneumatics and Hydraulics Training, General Mills – Yoplait, Reed City, Michigan (2004)

Electronic Fundamentals – Ohm's Law and Circuits, Rexair, Four Winns Boats, and Borg Warner Cadillac, Michigan (2004)

Hydraulic/Pneumatic Fundamentals, Collins & Aikman, Evart, Michigan (2004)

Schematic, Piping and Instrumentation Diagram Reading, Collins & Aikman, Evart, Michigan (2004)

The Laptop Initiative, Presented to the Chief Information Officer, Ferris State University, Big Rapids, Michigan (2003)

Understanding Diagrams, Schematic, Wiring, Ladder Logic, and others, Rexair, Four Winns Boats, Borg Warner, and Fiam, Cadillac, Michigan (2003)

Switched Reluctance Drive Systems, Rexair, Cadillac, Michigan (2002)

Troubleshooting with Rockwell Software and Three Phase Circuits, Tubelite, Inc., Reed City Michigan (2002)

How to Prepare and Deliver a Power Point Presentation, Sara Lee Bakeries, Supervisor Workshop, Traverse City, Michigan (2000).

Papers, Presentations, and Workshops (continued)

Electromechanical Fundamentals, Workshop, Cleveland Cliffs Incorporated,

Northern Michigan University, (2000).

Installation and Check-out Procedures and Operations, Workshop, Puget Sound Naval Shipyard. Textron Defense Systems, Lowell, Massachusetts (1991).

Installation and Check-out Procedures and Operations, Workshop, Newport News Shipbuilding and Dry Dock Company and Philadelphia Naval Shipyard. Bell Aerospace Textron, Buffalo, New York (1989).

Developed and Revised Maintenance In Progress (MIP) Logs and Preventive Maintenance Scheduling (PMS) Cards for Naval Air Warfare Center – Aircraft Directorate. Bell Aerospace Textron, Buffalo, New York (1987).

N.T.D.S. (Naval Tactical Data System) and Data-link Communications, Naval Technical Workshop, Patuxent River Naval Test Facility. Lexington Park, Maryland (1987).

Teaching Experience

FERRIS STATE UNIVERSITY 2001 – Present
College of Technology
Electrical/Electronics Engineering Technology and Computer Networks and Systems Department
Assistant Professor – Tenured (2005)

Undergraduate courses taught: Digital Electronics I and II with Microprocessors, Survey of Electronics, Troubleshooting, Industrial Automation, Motors and Three Phase Machines, Controls for Automation, Programmable Logic Controllers,

Industrial Computer Networking (Plant Floor Communications), Motion Control Systems.

NORTHERN MICHIGAN UNIVERSITY 1996 – 2001

College of Technology and Applied Sciences

Engineering Technology Department (fmr. Department of Electronics), Instructor

Undergraduate courses taught: Introduction to Electricity, Advanced Linear Circuits, Industrial Measurement and Control, Digital Electronics, Basic Semiconductors, Industrial Sensors, Microprocessors, I and II, Industrial Fluid Power, Programmable Logic Controllers, Process Control, Fundamentals of Electricity Survey, Motors and Industrial Power Distribution Systems *via Interactive Television (ITV)*, Industrial Motor Controls.

TODD TRAINING (formerly Aviation Controls, Inc.), 1998 – 2004.

Instructional Consultant

Teaching Experience (continued)

Training Conducted: Beginning Algebra, Survey of Electrical Systems, Introduction to Mechanical Power Transmission, PLC applications and programming, Process Control Fundamentals.

TEXTRON SYSTEMS (Formerly Textron Defense Systems), 1991 – 1993

Associate Engineer

Duties included: System test and government acceptance procedures, maintenance procedures, production supervision, creating and implementing Engineering Change Orders (ECO's) and Change Requests (ECR's), and redesign for updates in hardware.

Training Conducted: Shipyard installation and check-out procedures for the AN/ SPN-46 Automatic Carrier Landing System.

BELL AEROSPACE TEXTRON 1986 - 1991

Field Service Engineer/Associate Engineer

Duties and Training Conducted: Trouble-shooting techniques, Installation and System Check-out Procedures, Data-link Communications, Radar Operation and Preventive Maintenance, Ship Motion Sensor Operation, and Scheduled Maintenance Performance/Maintenance in Progress Logistics.

Curriculum Development

CORPORATE AND PROFESSIONAL DEVELOPMENT, FERRIS STATE UNIVERSITY, 2002 – Present
Developed several sixteen hour technical training programs on the subjects of schematic diagram reading, Programmable Logic Controllers, Pneumatics and Hydraulics, Industrial Maintenance, Basic Electricity and Electronics, Drive Systems (Servo, AC/DC, Switched Reluctance), and various other topics.

FERRIS STATE UNIVERSITY
Developed a plant floor communications course based on RSLogix 500 and 5000, ControlNet, DeviceNet, and EtherNet/IP (Rockwell Automation products) from the foundation up. The course shows the students the infrastructure behind industrial networks, explains the three levels of networks and allows the student to become fluent in RSNetworks & RSLinx software required for communication.

Assumed development of Industrial Motion Control. In this course the student must utilize learned physics to design and troubleshoot linear, leadscrew, rotational, tangential, and other motion applications using closed loop servo control. The course is approached from the Mechatronics (electromechanical) perspective so as to give the student a better understanding of automated machines, robotics, and mechanical as-well-as rotating electrical machinery.

Curriculum Development (Continued)

REXAIR CORPORATION, 2003

Developed a twenty-four hour training program on Basic Electronics through Switched Reluctance Drive Systems. This was an individualized program that to meet specific product service technician needs.

MEAD PAPER DIVISION, 2000

Developed a two-week technical training program for Mead Paper Division instructing technicians on the operation and maintenance of the Foxboro Intelligent Automation (I/A) Process Control Computer System.

NORTHERN MICHIGAN UNIVERSITY, 1996 – 2001

Developed classes two to four credit classes delivered in an accelerated (three week) format. Each class is designed to emulate current university curriculum while conforming to industrial schedules. New courses developed (including laboratory experiments): Industrial Sensors and Controls, Process Control, Programmable Logic Controllers (Automax Software), Foxboro Intelligent Automation, and Industrial Power Distribution.

Existing courses revised for accelerated study include: Introduction to Electricity, Advanced Linear Circuits, Digital Electronics, Basic Semiconductors, Microprocessors, I and II, Industrial Fluid Power, Programmable Logic Controllers, Fundamentals of Electricity Survey and Industrial Motor Controls.

MEAD PAPER DIVISION, 1999

Algebra and a Survey of Electricity. This training was for non-electricians working with electrical devices.

TEXTRON SYSTEMS (Formerly Textron Defense Systems), 1992
Developed and conducted shipboard and classroom training for the United States Navy on operation and maintenance of the AN/SPN-46 Automatic Carrier Landing System.

BELL AROSPACE TEXTRON, 1987
Developed *modular* training for the United States Navy at the Naval Air Test Center, Lexington Park, Maryland on operation and maintenance of AN/SPN-46 Automatic Carrier Landing System Radar/Ship Motion Sensor.

Administrative/Team Activities

Ferris State University

- Senate Ad-Hoc Committee on E-Learning **Chair** (2007 – Present)
- Outcomes Assessment Committee (2007 – Present)
- Tenure Committee (2006 – Present)
- TAC-ABET Assessment Committee – **Chair** (2005 – Present)
- University – Portal Advisory Committee (2004 – Present)

Administrative/Team Activities (Continued)

- Faculty Search Committee (2003 – 2004, 2007)
- Technology Accreditation Commission for the Accreditation Board for Engineering and Technology (TAC-ABET) Recertification Team (2002 – 2003, 2005 – Present)
- College of Technology Graduate Programs Committee (2002 – Present)
- Electrical/Electronics Engineering Technology and Computer Networks & Systems Curriculum Committees (2001 – Present)
- Industrial Automation Student Association, Advisor (2001 – Present)
- Student Advisor, summer registration and academic year (2001 – Present)

Bay (formerly Bay de Noc) Community College

- Electronics Department Advisory Board (1998 – 2000)

Northern Michigan University

- College of Technology and Applied Sciences Advisory Board
- Various Departmental Committees

Student advising, on-campus and distance learning locations (1996 –2001)